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DNR RESEARCH & IN.

FINAL ENVIRONMENTAL IMPACT STATEMENT

PROPOSED OIL AND GAS LEASES
COAL CREEK STATE FOREST

MONTANA DEPARTMENT OF STATE LANDS
(Lead Agency)
and
MONTANA DEPARTMENT OF NATURAL RESOURCES
AND CONSERVATION

Submitted pursuant to
Montana Environmental Policy Act
Section 69-6504 (b) (3)

February 15, 1976

PLEASE RETURN

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I. INTRODUCTION

A. Federal Applications and Impact Statement

In the fall of 1974, and in accordance with the federal Mineral Leasing Act of February 25, 1920, applications for oil and gas exploration and development leases on approximately 236,000 acres of National Forest land were made to the Bureau of Land Management. These lease applications, which are for lands in Flathead County located near both the North and South Forks of the Flathead River, were submitted by three parties, with most of the land applied for by Texas Pacific Oil Company.

Although the Bureau of Land Management is the agency responsible for the actual issuance of the leases, the U.S. Forest Service is responsible for managing surface resources on National Forest lands. Consequently, by letter of agreement between the Departments of Interior and Agriculture, the U.S. Forest Service was afforded the opportunity to provide recommendations concerning stipulations to an oil and gas lease. Such stipulations were to be those which would protect other resource values if the leases were granted.

In accordance with the National Environmental Policy Act (NEPA) Flathead National Forest, prepared a draft Environmental Impact Statement (EIS). The action evaluated in the federal statement, entitled Oil and Gas Lease Applications Exploration and Development and issued on June 19, 1975, consisted of the U.S. Forest Service's recommendations to the Bureau of Land Management. Those draft recommendations are:

- (1) Granting leases with surface occupancy on 111,954 acres,
- (2) Granting leases without surface occupancy on 53,727 acres,
- (3) Holding lease applications on 16,996 acres until land use plans for these sections are completed, and
- (4) Denying leases on 53,323 acres.

The U.S. Forest Service's final EIS is expected to be ready about June 1976. Delays in the distribution date have been caused to a large degree by the substantial public comment on the federal draft EIS and by the need for multi-agency evaluation of the draft federal proposal.

B. State Applications and Impact Statement

On April 29, 1975, the Montana Department of State Lands (DSL) also received applications from Maxine Amick, broker for Texas Pacific Oil Company, for oil and gas leases on fourteen tracts of State Forest land in Flathead County, near the North Fork of the Flathead River. These tracts, consisting of 7,759.18 acres located within Coal Creek

State Forest, are bounded on three sides by the proposed federal lease tracts located near the North Fork of the Flathead River (see Location Map, Figure 1).

The tracts were rejected by DSL for a possible June 3, 1975, sale, because the proposed leasing as determined by DSL and DNRC, constitutes a major, significant action under the provisions of the Montana Environmental Policy Act (MEPA). Consequently, preparation and circulation of an environmental impact statement are necessary parts of the decision-making process.

In compliance with MEPA, a draft EIS was issued by DSL (lead agency) on November 26, 1975. Comments on the draft EIS and responses are presented in a later section of this statement. Public comments were utilized to extend, clarify, and otherwise improve many portions of the final EIS.

In considering the proposed federal lease area (approximately 30 times greater than the state area), the federal draft EIS deals with the broader impacts of an oil and gas exploration and development program. In addition, according to the federal draft statement, if substantial oil and gas reserves are discovered, there is a strong possibility that an additional federal impact statement will be written.

Consequently, the following state assessment, which focuses upon the impacts of oil and gas leasing upon the state land involved, should be considered an extension of that made by the federal government. The reader is referred to the U.S. Forest Service's draft EIS for a discussion of the broader impacts in the Flathead area, for DSL and the Department of Natural Resources and Conservation (DNRC) adopt that analysis as the basis for the following evaluation.

II. DESCRIPTION OF THE PROPOSED ACTION

A. Action Proposed by Applicant

1. Lease Area

Coal Creek State Forest consists of about 15,000 acres within the North Fork of the Flathead River drainage. The forest is located in the Whitefish Range approximately thirty road miles north of Columbia Falls and for a short distance shares a common boundary (the Flathead River) with Glacier National Park (see Figure 1).

That portion of the State Forest included in Texas Pacific Oil Company's lease applications is about four miles west of the Flathead River and involves fourteen tracts of land totaling 7,759.18 acres. One hundred and sixty of these acres (NE $\frac{1}{4}$, Section 35) were sold in 1912. The state, however, retained mineral rights to this quarter section, and, consequently, it has been included within the lease application area.

COAL CREEK STATE FOREST PROPOSED OIL & GAS LEASE AREA



LOCATION MAP

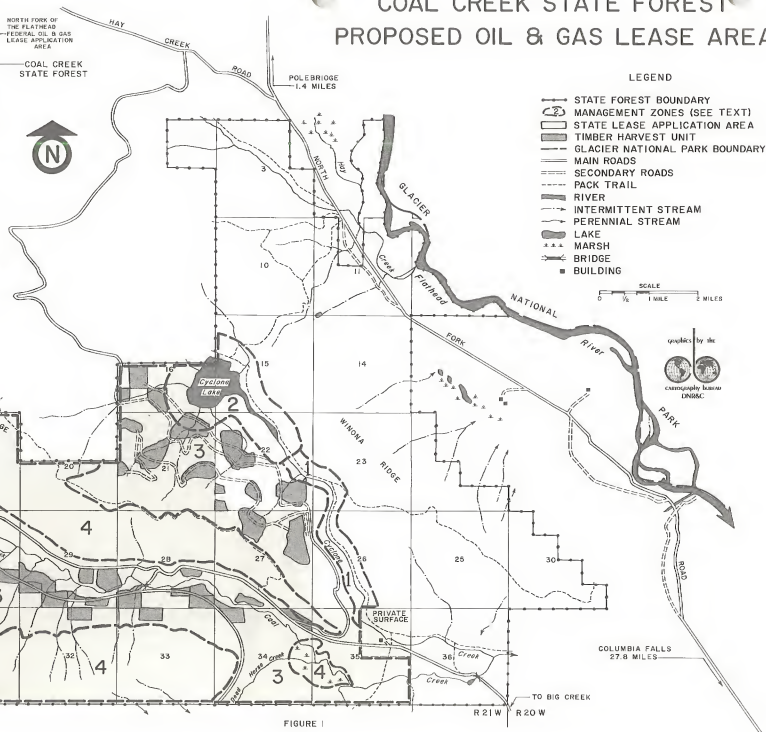
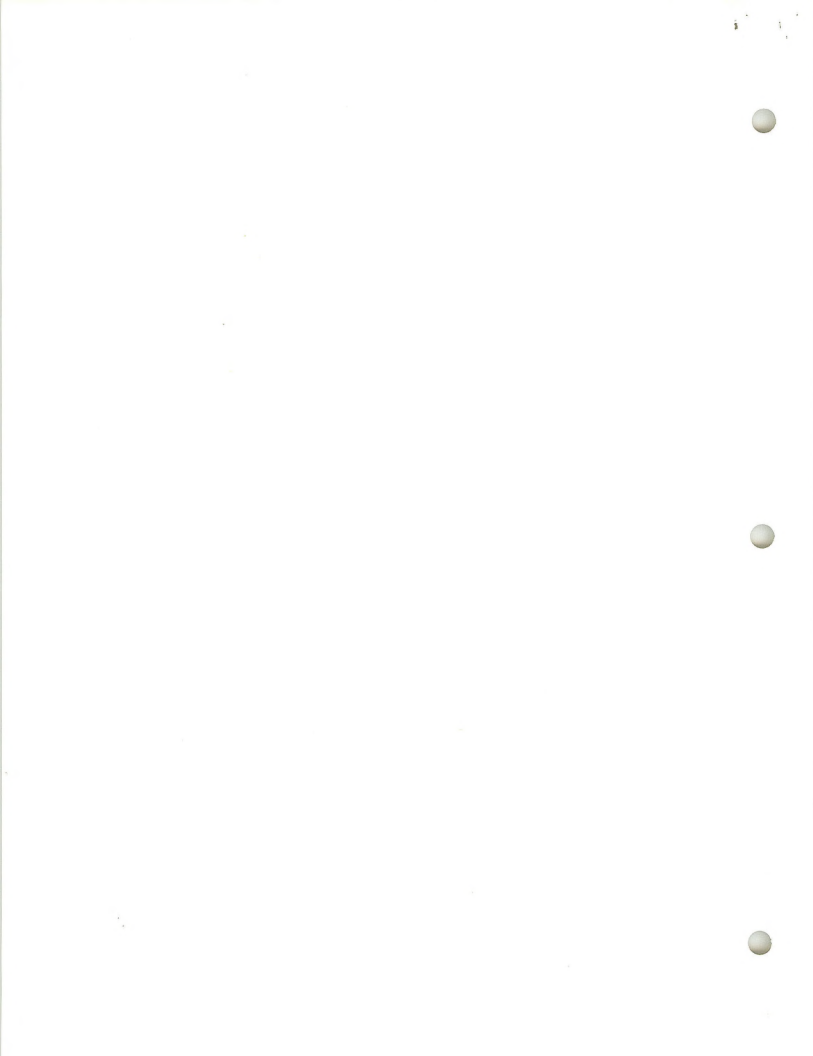


FIGURE 1



2. Applicant

Texas Pacific Oil Company is an oil and gas exploration and development company and a wholly-owned subsidiary of J. E. Seagram Co., New York; J. E. Seagram Co., in turn, is a wholly-owned subsidiary of the J. E. Seagram Distillery of Montreal, Canada. The headquarters for the company is in Dallas, Texas, with field offices situated in Calgary, Alberta; Lafayette, Louisiana; Oklahoma City, Oklahoma; and Midland, Texas.

The fourteen lease applications¹ discussed in this impact statement are the responsibility of the company's Calgary District Office. They were submitted by Maxine C. Amick of Billings, Montana, who is acting as a lease broker for Texas Pacific Oil Company.

To the north of the area, in Canada, Texas Pacific has discovered oil and gas in geologic substructures. In general, the studies in the Flathead are a continuance of the company's work in Canada. Through seismographic means, the company is looking for similar large, dome-shaped geologic substructures in this area that often contain hydrocarbons.² In consideration of the current prices for gas and oil, the company is willing to invest substantially in the determination of whether or not exploitable reserves exist in the North and South Forks vicinity.

If the necessary state leases are obtained, Texas Pacific will either contract or undertake themselves all phases of the oil or gas operation, including exploration, development, production, refining, and marketing. Part ownership may be sold to another company in return for investment capital.

3. Proposed Use on State Land

Texas Pacific has initiated the lease procedure for land within Coal Creek State Forest in order to obtain the right to explore for and develop any oil and gas deposits within the area. The leases are being sought prior to any certain knowledge that oil- and gas-bearing structures are, in fact, present. (The company has acknowledged that the possibility of a marketable find is low, although not so low as the 1:150 probability stated in the federal draft EIS.) This fact, the fact that the requested action is area

1. As required by the State of Montana, a separate lease application must be filed for each section of land, or portion thereof, involved. In this instance, fourteen separate and contiguous sections of land, or portions thereof, are sought.

2. See pages 33 and 34 of the federal draft EIS for a more detailed discussion.

specific (not site specific), and the fact that the requested action is sequential (each step being dependent upon success at the preceding step) make the actual use that will occur highly speculative.

Texas Pacific hopes to begin exploration activity in the Flathead area in the spring or early summer of 1976. The exact starting date for such exploration is dependent upon a) when and if the federal and state leases are issued, and b) the condition of the area's roads. If the leases are issued, exploration activity will start as early as the roads are sufficiently dry to accommodate heavy truck traffic and as directed by conditions which may be specified in the lease.

Generally, the following procedure is used by the applicant in exploring for any developing oil or gas.

(1) Preliminary Evaluation of the Area's Potential to Produce Oil and Gas.

Aerial photos and existing geological information are used to determine the presence of generally suitable geological structures which may be capable of trapping oil and gas. This step, which required no permission or actual use of the forest, has been completed by the applicant and has resulted in the decision to proceed with the leasing phase.

(2) On-the-Ground Exploration, Utilizing Several Techniques to Confirm That Sufficient Commercial Quantities of Oil and Gas are Present.

This step involves two major phases:

- (a) Detailed examination of selected geologic surface features and seismic evaluation of the geologic structure of the area--This phase basically involves the application of seismographic methods of delineating geologic sub-structures which may contain oil or gas fields. Vibrator trucks, very sensitive shock recorders (geophones), and computers are used.

This approach is more expensive than the older method of seismographing--exploding dynamite in deeply-drilled holes and recording the effect of the resultant shock wave. However, the applicant has indicated that the results of the newer system are substantially more accurate, since the vibrator trucks create a more precise shock wave than does an explosive charge.

Initially, several miles of conductive cable are strung along roads or trails. The shock-sensitive geophones are permanently attached to this cable at about 18-foot intervals. After the cable is in place, several special vibrator trucks are moved to a pre-established location and set up to generate the necessary shock waves. Large hydraulic pads are then lowered from the trucks until they support the trucks' weight

Once in position, the pads under each truck are vibrated simultaneously, which transmits nondestructive shock waves deep into the crust of the earth. These shock waves strike the various subsurface formations and rebound differently, depending upon the nature of the geologic feature. The return shock waves are picked up by the geophones and transmitted along the cable to computers in a nearby recording truck. Following a brief vibrating period, the vibrator trucks are moved a short distance, and the process is repeated.

The applicant has informed the state that existing roads within Coal Creek State Forest would be adequate for the initial seismic reconnaissance. During the later stages of seismic reconnaissance, the applicant may request to cut 14-foot-wide strips through the timber in order to more precisely locate the cable. Such strips would not be used as roads, however, as the cable would be laid in place by hand. Existing roads would probably also be sufficient for additional detailing work that may be needed before any exploratory drilling.

Once the seismographing is completed in an area, the computer records are interpreted by geophysicists who develop subsurface geology maps and identify areas capable of trapping hydrocarbons. These data can only indicate if promising areas are present. It is, therefore, at this point that the applicant must determine whether the seismic evaluations are sufficiently promising to warrant the drilling of exploratory wells to establish the possible existence of an oil or gas field.

- (b) Drilling of one or more exploratory wells to confirm the presence of commercial quantities of oil and gas--This phase would require the construction of one or more drilling sites ranging from two to six acres. Leveling of the site in order to provide a flat surface for the drill rig would require approximately 1/10 acre; slope alterations might be necessary to make the remainder of the site sufficiently level for safe and efficient operation. If the drill site is not served by a road, access roads might be required. Depending on the evaluation of the drilling results, the applicant must decide to discontinue drilling, convert the existing exploratory well(s) into development well(s), or drill additional production wells.
- (3) Development of Oil and Gas Discovery into Actual Commercial Production, and Construction of Drilling Sites for Production Wells.

The possible requirements of this phase are roads, conversion of existing exploratory wells into production wells, construction of storage tanks, construction of a collecting pipeline system with a pumping station, upgrading or improving maintenance on existing roads to provide year-around access, construction of small local power generating sites or a power line to serve the field, and establishment of a small, local administrative and service site. Representatives of Texas Pacific Oil Company have indicated that it is unlikely that structures beyond the usual pumping stations, storage tanks, and pipelines would be necessary, even if large quantities of oil and gas were discovered.

- (4) Exhaustion and Abandonment of Production Wells.

This stage would involve those actions necessary to close down existing wells and related facilities, remove structures, close applicant-constructed roads, and rehabilitate drilling sites, storage tank sites, pipeline rights-of-way, and administrative and service facilities.

The refining and marketing phases of the oil and gas operation would probably not take place on state land.

B. Action Requested of the State

1. General Lease Sales Procedures

Sales of oil and gas leases on state lands are normally held quarterly and are made by competitive oral bid. Any legally

qualified person who wishes to have a tract of land offered for oil and gas leasing must submit a formal application along with a fee as prescribed by the Department of State Lands. In order to allow the necessary time for publishing the notice of the lease sale, applications are to be filed with DSL at least forty days before the regularly scheduled date of sale, whenever possible. As required by law, notice of the tracts to be offered for sale on the next sale date is published in the Montana Oil Journal.

Sales are offered by the Commissioner of State Lands,³ subject to the approval of the State Land Board.⁴ This Board normally decides whether to accept lease sales at its regularly scheduled monthly meeting next following the sale date.

For a more complete description of the details of oil and gas leasing procedures on state lands, see Appendix A.

2. Legal Provisions Governing Lease Sales

The provisions of law which govern the sale of oil and gas leases are found in Chapter 17, Title 81 of the Montana Statutes (R.C.M. 1947). In addition to the statutes, rules and regulations governing the issuance of oil and gas leases on state lands have been promulgated. A new set of such rules and regulations was adopted by the State Land Board on September 15, 1975, and became effective on December 5, 1975 (see Appendix A).

3. Terms of State Leases

When the State Land Board issues a lease, the lessee is granted the right to explore, drill for, develop, and remove all oil and gas under the leased lands for a primary period of ten years (Section 81-1701, R.C.M. 1947). The rationale for not leasing these various phases separately (splitting the leases) is that, where development rights are not part of the original lease, bidders would not offer to pay as high a price. The lease's value would be less because bidders for an "exploration lease" would have no assurance that, if oil or gas were discovered, they would also receive the "development lease." Lease splitting would be, therefore, contradictory to the trust principle of securing the "...largest measure of legitimate and reasonable advantage to the state" (see Section IV. ALTERNATIVE ACTIONS A. Legal Considerations).

3. Chief administrative officer of the Montana Department of State Lands, the Commissioner of State Lands is appointed by and serves at the pleasure of the Governor.

4. The State Land Board, also called the State Board of Land Commissioners, is established by the Constitution of the State of Montana to consist of the Governor, Attorney General, Superintendent of Public Instruction, State Auditor, and Secretary of State.

Oil and gas leases on state land are subject to the following:

- (1) Terms described in the lease itself, including any special conditions that may be added by the State Land Board,
- (2) Rules and regulations governing the issuance of oil and gas leases on state lands (see Appendix A), and
- (3) Rules and regulations of the Montana Board of Oil and Gas Conservation. (Chapter 18, Title 36, M.A.C.).⁵

The lease provisions for oil and gas on state lands are similar to those required by the Bureau of Land Management on federal lands.⁶

4. Continuance of Leases

The continuance of such leases is contingent upon the lessee's fulfilling all obligations set out in the lease. Briefly, those obligations include:

- (1) Complying with all rules and regulations of the Board of Oil and Gas Conservation relative to exploring and drilling for oil and gas and preventing waste,⁷
- (2) Allowing inspections by DSL personnel and carrying out their instructions relative to the prevention of waste and spillage,⁸
- (3) Using the highest degree of care and proper safeguards to prevent pollution of earth, air, or water by hydrocarbons or other pollutants,
- (4) Stockpiling any topsoil removed in the drilling operation, restoring the surface contours following the completion of drilling, and reseedling,

5. Copies of such rules and regulations are available from the Board of Oil and Gas Conservation, 325 Fuller Avenue, Helena, Montana 59601 (phone 406-449-2611).

6. See page 44 of the federal draft EIS.

7. Such regulations include requirements for the spacing of wells and the submission of a performance bond. A performance bond is posted to ensure that dry or abandoned wells are properly plugged, that the surface is restored to its original contours and productive capacity, and that necessary measures are taken to prevent adverse hydrologic effects (amendment to Rule MAC 36-3.18(10)-S18130 November 14, 1974).

8. Generally, the Board of Oil and Gas Conservation conducts such inspections due to its expertise.

- (5) Drilling, upon completion of a commercially productive oil and gas well, such additional wells to the depth of the formation found commercially productive or to such a depth as may be necessary to economically test, develop, and operate the deposits discovered, and
- (6) Making payments to DSL in the form of lease rentals, royalties, and, where applicable, delay drilling penalties.

III. EXISTING ENVIRONMENT

A. History

The lands constituting the 14,978-acre Coal Creek State Forest were granted to the state from 1892 to 1909 in accordance with provisions of the Enabling Act (see IV. ALTERNATE ACTIONS A. Legal Considerations). The discovery of coal near the mouth of Coal Creek in the 1880's was apparently one of the primary reasons the state selected this area for ownership. However, only a minor amount of coal was discovered and removed. Coal has not been commercially produced from this state land in the past forty years.

Large fires occurred on Coal Creek State Forest in 1910, 1919, 1922, and 1926. Approximately one half of the forest was burned in these fires; this area has since revegetated naturally.

In 1925, the state legislature formally designated the state-owned lands in the Coal Creek drainage as Coal Creek State Forest. However, forest development activities, in the form of roads and timber sales, were not initiated until the early 1950's, when a road was constructed up Coal Creek to provide access to U.S. Forest Service lands.

An extensive spruce bark beetle epidemic in the late 1950's and another in the late 1960's resulted in the two major timber sales that have occurred and the present forest road system. Timber management activities on Coal Creek State Forest have been limited almost entirely to salvage and sanitation types of cuts.

9. Salvage and sanitation cuts can be broadly grouped as salvage cuttings. The general purpose of salvage cuttings is to remove trees that have been or are in danger of being killed or damaged by fungal or insect attack. Sanitation cuttings fall within this group, although their specific purpose is to prevent the spread of any pest to other trees.

B. Natural Environment

1. Climate

Coal Creek State Forest is primarily affected by Pacific maritime weather systems which characteristically result in large winter accumulations of snow leading to high stream flows in the spring. Precipitation occurs throughout the year, although there are great variations by season and elevation. The higher elevations on the west side of the forest receive more precipitation than do the lower elevations along the eastern boundary.

Year-around weather stations have not been established in the State Forest; consequently, no precise annual meteorological data are available. However, a general conception of its precipitation regimes may be gained from the following data¹⁰ which have been reported from Polebridge, located at 3,600 feet elevation and approximately 2.5 miles north of the State Forest.

Mean yearly precipitation at Polebridge is 23.6 inches. Mean monthly precipitation ranges from a low of 1.17 inches in July to a high of 2.91 inches during January. Snowfall is high, with the mean yearly figure being 122.4 inches. Over 90 per cent of the snowfall and 50 per cent of the precipitation occurs during the five-month period of November through March. The frost-free season at low elevations in the State Forest has been estimated at no longer than 30 to 40 days.

2. Hydrology

Coal Creek, its headwaters arising from the Whitefish Mountain Range, drains an area of approximately 85 square miles. All water from Coal Creek State Forest flows into the North Fork of the Flathead River and ultimately into the Columbia River. However, with the exception of a recently-initiated study by the Montana Department of Fish and Game, flow figures are not available.

Coal Creek, Cyclone Creek, and Dead Horse Creek are the important perennial streams; a number of intermittent streams are also found in the area. Cyclone Lake, an extremely beautiful glacial lake, has approximately 145 acres of surface area.

3. Water Quality

Water quality of the North Fork and its tributaries on Coal Creek State Forest is generally good. However, relatively high sediment loads may be carried during the annual spring runoff.

¹⁰ U.S. Department of Agriculture, Forest Service, Flathead Wild and Scenic River Study (Washington, D.C.: Government Printing Office, 1973).

Sediment originating on the forest comes primarily from the glacial materials through which Cyclone and Coal Creeks flow. Some sediment is contributed from road surfaces, ditch runoff, and timber harvesting practices; however, the amount is believed to be small due to erosion control measures which accompany all road construction and timber harvesting activities.

Two interrelated programs are currently studying the water quality of the North Fork of the Flathead River and its tributaries.

- (a) Montana House Bill 622 - Administered by DNRC in conjunction with the Department of Fish and Game and other state agencies with relevant expertise, House Bill 622 provides funding for a study of water quality in upper portions of the Flathead River drainage.¹¹ As part of the study, an evaluation will be made of the water quality impacts on the North Fork resulting from various levels of development at the proposed Cabin Creek coal mine just north of the Canadian border.

Methodology includes the collection and analysis of all biological, chemical and physical data pertinent to the hydrology and limnology of the study area including data currently being gathered by the Flathead 208 project. Results of the study will be presented to the Forty-fifth Montana Legislature, which convenes in January 1977.

- (b) Flathead 208 Project - With money provided by the Environmental Protection Agency and administered locally, "208 funds" provide for the collection of information on point and non-point sources of water pollution.¹² The Flathead 208 project is an Interagency Task Force involved in several studies, one of which is the collection of chemical, biological and physical baseline data on the North Fork of the Flathead River drainage. Such data will be used in analyzing the potential impacts to water quality from the proposed oil and gas leasing in Flathead County (state and federal) and the proposed Cabin Creek development.

A water quality monitoring program jointly sponsored by the 208 Study Team and the Montana Department of Fish and Game was initiated in September of 1975. The study

11. House Bill 622, signed into law on April 29, 1975, appropriates \$47,500 from the general fund for the study.

12. 208 funds are in reference to Section 208 of Public Law 92-500, effective October 18, 1972.

is designed to collect monthly (and in some instances quarterly or semi-annual) water and stream bottom insect samples from the main-stream of the North Fork and important west-side tributary streams flowing into the North Fork.

Included among the water sample collecting points are two stations on Coal Creek, two on Cyclone Creek, and one on the South Fork of Coal Creek. Operation of these stations began on October 1, 1975, and will continue through September 30, 1976. Among the chemical parameters being studied are pH, turbidity, hardness, alkalinity, conductivity, sulfate, and nitrate.

Included among the stream bottom insect collecting points is a station at the mouth of Coal Creek, a site of quantitative sampling. Such insects provide baseline data for water quality and further serve as sensitive indicators of quality changes. Insect sampling began in November 1975 and will continue through August 1976.

A proposal to extend the "208" monitoring program for another year or two has been made and hopefully will be funded by the Environmental Protection Agency. It is felt that more than one year's data is necessary to establish base line information prior to environmental disturbance by the Canadian Coal Development and Texas-Pacific oil and gas leases.¹³ For a more complete description of the 208 studies see the letters included in Appendix B.

4. Geology

Three formations of Precambrian-aged rock underlie that portion of the State Forest for which lease applications have been made. These are:

- (1) Roosville Formation--green-gray, red-brown, grayish-orange, and red-purple coarse-grained argillite. Some gray quartzite in lower part. Dolomitic stromatolites in the lower 1,000 feet.
- (2) Phillips Formation--grayish-red and red feldspathic sandstone, quartzite and argillite; some gray-pink and green-gray sandstone. Crossbedding, ripple marks, and mud-crack casts commonly found.

13. Personal communication from Bob Domrose, Fisheries Management Biologist, Montana Fish and Game Department, Kalispell to Brace Hayden, DSL, February 5, 1976.

- (3) Kintla Formation--greenish-gray, grayish-red, and brown fine-grained argillite, sandstone, and quartzite. Dolomitic stromatolites interbedded with quartzite in the lower part.

No faults are mapped in the lease area. The types of rock present are usually quite competent, and the low dip angle of the surface bedrock, generally to the northeast at 19 degrees to 29 degrees, should reduce the possibility of bedrock failure.

5. Topography

The topography of Coal Creek State Forest has been strongly influenced by valley glacier modification of pre-existing bedrock features. Major ridges within the forest such as Coal Ridge, Winona Ridge, and the unnamed ridge between Coal and Dead Horse Creeks have a strong east to southeast alignment. Consequently, southwest and northeast aspects are most characteristic of the forest.

Average side slopes on ridges within the forest range from 35% to 75%. Elevations vary from 3,480 feet along the North Fork road in Section 14, T34W, R21W, to 6,766 feet on Coal Ridge in Section 18, T34N, R21W.

Significant topographic and cultural features include Cyclone Lake, portions of the North Fork of the Flathead River, and two major streams, Cyclone Creek and Coal Creek. Two major forest access roads (the main North Fork Road and the Coal Creek Road) and several forest management roads pass through the forest (see Figure 1).

6. Soils

A detailed soils survey has not yet been made. A brief, initial examination indicates that the soils present consist of ash-influenced surface soils over medium-textured subsoils derived from glacial till.

During the soil formation process, this glacial till was apparently compacted by ice, creating differential permeability in the resulting soil. The compacted glacial till which is present over much of the forest is susceptible to slumping and also creates special problems in the re-establishment of vegetation due to the difficulty of root penetration and seedling survival.

7. Fire, Insects, and Disease

Past fires have played a significant role in the vegetational development of Coal Creek State Forest, as they have throughout the Northern Rocky Mountain region. Large wildfires are expected to reoccur periodically.

Due to the age and condition of the various forest stands, insect and disease problems are major considerations in planning forest management activities. The spruce bark beetle, Douglas-fir beetle, western budworm, larch casebearer, and flathead woodborer have reduced growth and contributed significantly to tree mortality. The lodgepole pine mistletoe has also reduced the growth of stands in which it is found.

8. Vegetation

Coal Creek State Forest is predominantly forested with the exception of several south-facing slopes, small, grassy parks, and open, grassy ridges. The entire forest has been forest cove-typed, and acreages and timber volumes by condition classes have been determined. On the basis of this analysis, the most abundant tree species are Douglas-fir, western larch, Engelmann spruce, lodgepole pine, and sub-alpine fir; lesser amounts of western white pine, whitebark pine, and grand fir are present. Currently, the total merchantable sawtimber volume on the forest, for all species, is estimated at ninety-nine million board feet.

Only a very extensive reconnaissance of forest habitat types¹⁴ on Coal Creek State Forest is now available. The reconnaissance was made by the U.S. Forest Service in connection with its planning activities in the North Fork Planning Unit.¹⁵ Four habitat types were identified as occurring on the forest--Sub-alpine fir/queencup bead-lily, Sub-alpine fir/beargrass, Sub-alpine fir/menziesia, and Sub-alpine fir/woodrush.

9. Wildlife/Fisheries

Coal Creek State Forest provides habitat for many of the wildlife species native to the sub-alpine forests of the Northern Rockies. Mammals commonly encountered include elk, moose, white-tailed deer, mule deer, black bear, snowshoe hare, beaver, muskrat, and pine squirrel. Less commonly found are the mountain

14. The habitat types were based on the system devised by Pfister, et al., U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station, Preliminary Forest Habitat Types of Western Montana, 1972.

15. U.S. Department of Agriculture, Forest Service, Flathead National Forest, "Vegetative Habitat Type 1 Descriptions of the North Fork Planning Unit," Multiple Use Plan North Fork Planning Unit, Report No. USDA-FS-FES (Adm) R-1-71-11 (Final Environmental Impact Statement), November 26, 1974.

lion, lynx, fisher, martin, wolverine, grizzly bear, and river otter. Avian species include blue, spruce, and ruffed grouse, woodpeckers, and numerous perching birds. Raptors found on the forest include such uncommon species as the osprey, golden eagle, and bald eagle.

The Kalispell Office of the Montana Department of Fish and Game has provided the following general information concerning wildlife on Coal Creek State Forest:

There is no whitetailed deer, mule deer or elk normal winter range within the lease application area. Mule deer and a few elk winter on the Winona Ridge area just to the east of the land on which lease applications have been made. Moose are capable of traversing much of the terrain in the North Fork under average conditions of winter and we have been unable to pinpoint critical areas on which use can be expected each year. Black and grizzly bear occur throughout the North Fork. Three species of mountain grouse are found year-round in the area. Fisher, uncommon in the North Fork before the 1960's, have been trapped in drainages near Coal Creek and, since they are in an expanding population status, could be expected to occupy the lease application area. Many other species of small game and non-game can be found in the area.¹⁶

Coal Creek State Forest represents habitat or potential habitat for two species of wildlife now classified as "endangered" by the U. S. Fish and Wildlife Service (USFWS). Presence of one of the "endangered" species, the Northern Rocky Mountain wolf, in the North Fork drainage west of the river is documented by recent sightings or mortalities.¹⁷ Another new report indicates that the Peregrine Falcon, the other "endangered" species, is occasionally seen in the valley of the North Fork.¹⁸

16. Personal communication from Thomas R. Hay, Montana Department of Fish and Game, Kalispell, to James F. Gragg, Montana Department of Natural Resources and Conservation, Kalispell, August 28, 1975.

17. Francis J. Singer, 1975, "The History and Status of Wolves in Northern Glacier National Park, Montana", G.N.P. Scientific Paper No. 1, West Glacier, Montana.

18. Francis J. Singer, 1975, "Observations on the Wildlife of the North Fork of the Flathead River", G.N.P. Research Note No. 1.

In addition, the grizzly bear was recently classified as "threatened" by the USFWS. Evidence of grizzly bear use of areas adjacent to or within Coal Creek State Forest came in 1974 when two bears were legally harvested - one on Demers Ridge, immediately to the south of the state forest, and one on the ridge above Cyclone Lake.¹⁹

Coal Creek State Forest is included within the research area of two "threatened" or "endangered" species studies: the Wolf Recovery Team and the Border Grizzly Project. The Wolf Recovery Team serves in a scientific advisory capacity to state and federal agencies with the goal of preserving wolves and wolf habitat. The Team has tentatively designated the Whitefish Range as one of three potential recovery sites in Montana.

In the Border Grizzly Project, the ecology of the grizzly in the northwestern United States and adjacent Canadian Provinces is being investigated. Dr. Charles Jonkel, project leader, indicates that little is known of the total grizzly population in the North and South Forks of the Flathead River drainage; estimates for the Big Creek Drainage approximately $4\frac{1}{2}$ air miles south of Coal Creek average one bear per thirteen square miles.²⁰

In reference to the Whitefish Range, Jonkel states:

...even though heavily roaded and extensively clear cut, the Whitefish Range of the North Fork drainage appears to have a relatively stable grizzly bear population. The Whitefish range circumstance could probably be explained by two things; the isolation afforded by being adjacent to Glacier National Park and being only lightly used by hunters, hikers, and fishermen.²¹

Regarding the specific lease proposal on state land, Jonkel feels that grizzlies can use all four habitat types of the forest. Furthermore, although extensive observations of grizzly bears have not been recorded within the proposed lease area, there is reason to believe that Coal Creek State Forest comprises at least a seasonal element of grizzly bear habitat. The two most important areas for Grizzlies on the State Forest are open ridge tops and the flood plain of Coal Creek.

19. Personal communication from Otis Robbins, Montana Department of Fish and Game, to Brace Hayden, DSL, January 14, 1976.

20. C. Jonkel and G. Joslin, 1975, "USFS Oil and Gas EIS, Flathead National Forest", a paper prepared by the Border Grizzley Project, University of Montana, 4 pp. mimeographed.

21. Personal communication from Charles Jonkel, University of Montana, to Brace Hayden, DSL, January 16, 1976 and February 11, 1976.

In 1975, the Border Grizzly Project began studies to delineate critical habitat for the grizzly bear in the Whitefish Range, and a preliminary report will be available in March 1976. In Jonkel's response to the state's draft EIS, he noted that other investigations, either currently underway or planned, would include a study of grizzly bear behavioral responses to such specific disturbances as logging, and seismic and exploratory drilling.

Cyclone Lake is relatively shallow (maximum depth, 22 feet) and supports an excellent self-sustaining fishery for west-slope cutthroat trout. Other game fish inhabiting the lake are Dolly Varden, grayling, and mountain whitefish. Cyclone Lake is the only lake of significant size in the Coal Creek drainage supporting a fishery. (See Appendix B.)

Both cutthroat and Dolly Varden trout are important game fish found in Cyclone and Coal Creeks, which are significant spawning streams for these species. Coal Creek is one of eight tributaries of the Flathead River that have been closed throughout the year to fishing. This closure is part of a plan by the Montana Department of Fish and Game to allow for adequate fish recruitment to Flathead Lake. Restrictive regulations, however, have given this fishery only a small measure of production. High water quality standards, along with maintenance and restoration of stream habitat, are of the utmost importance to sustaining a wild trout fishery.

Parameters measured thus far show that the water quality of the Coal Creek Drainage is excellent for supporting and sustaining wild trout populations. For a more complete description of the Coal Creek Fishery, including abundance, size, age, and growth data, see Appendix B.

The Montana Fish and Game Department will implement a long-range (2-5 year) North Fork drainage study in the spring of 1976. Emphasis will be directed on the spawning migration of cutthroat trout from Flathead Lake. A principal tributary in these studies is Coal Creek (see Appendix B).

C. Social/Economic Environment²²

Coal Creek State Forest is used principally by local residents for a wide variety of activities including sightseeing, nature study, hiking, hunting, fishing, berry picking, picknicking, camping, pleasure driving, snowmobiling, and firewood cutting. Ice fishing on Cyclone Lake is a popular form of recreation. Developed campsites are not present on the forest.

22. This material is intended to supplement the "Socio-Economic" discussion found on pages 25 and 26 of the federal draft EIS.

Timber sales, thinning operations, timber salvage, and post and pole sales provide local employment, generate personal income, and furnish a source of raw materials for further processing by the local wood products industry. All monies received by the state from the sale of forest products are deposited in permanent funds, the interest from which is used for the support of public schools, state institutions, or other state entities to which the revenue has been dedicated. From forest product sales to date, in excess of \$638,000 has been provided to the various permanent funds involved.

In addition, two grazing leases, one cabin site lease, and an occasional special-purpose lease and permit have produced an undetermined, small amount of income from the forest. The monies received from such revenues are deposited in special interest and income funds and distributed as provided for by state law.

IV. ALTERNATIVE ACTIONS

A. Legal Considerations

The Congress of the United States by the Enabling Act (25 Stat. 676) approved February 22, 1889, granted Sections 16 and 36 in every township within Montana to the state for common school support. The Enabling Act and subsequent acts also granted acreage for other educational and state activities and further provided that all lands so granted could be disposed of only at public auction after proper advertising. In accordance with the Enabling Act, land comprising Coal Creek State Forest was obtained under the following grants:

- (1) Common Schools,
- (2) State Agricultural College,
- (3) School of Mines,
- (4) Deaf and Blind Asylum,
- (5) State Reform School,
- (6) State Normal School (Eastern Montana College and Western Montana College), and
- (7) Public Buildings.

As provided by law, state lands which were granted by the federal government are trust lands given for the support of schools and other public institutions. As such, these state lands are not public lands in the same sense that federal lands are. The beneficiaries of the trust are schools and institutions which belong to the people of Montana--not the people themselves.

The State Land Board, through the Montana Constitution, is given the authority to direct, control, lease, exchange, and sell school lands. (Land classified as State Forest, however, may not be sold.) Although decisions involving school lands (including the sale of oil and gas leases) are made by the Commissioner of State Lands, all such decisions are ultimately subject to the approval of the Board.²³

State lands designated as State Forest are managed cooperatively by the Forestry Division of the Department of Natural Resources and Conservation and the State Land Board. Major actions concerning the management of State Forests, such as timber sales, and easement and lease requests, are submitted with recommendations by the DNRC to the State Land Board for the latter's consent or denial. In the case of the proposed oil and gas leases on State Forest Land, the Department of Natural Resources and Conservation will recommend to the State Land Board, through the Commissioner, whether or not to approve the lease sale.

The statutory principles which generally guide the actions of the State Land Board are:

- (1) The School Trust Doctrine (Section 81-103, R.C.M. 1947)

"... the board shall administer this trust to secure the largest measure of legitimate and reasonable advantage to the state."

- (2) The Multiple-Use Concept (Section 81-103, R.C.M. 1947)

The Board shall manage these lands under the multiple-use concept defined as: "...the management of all the various resources of the state lands so that they are utilized in that combination best meeting the needs of the people and the beneficiaries of the trust, making the most judicious use of the land for some or all of those resources ... without impairment of the productivity of the land, with consideration being given to the relative values of the various resources."

- (3) Resource Development (Section 81-2401, R.C.M. 1947)

"It is in the best interest and to the greatest advantage of the State of Montana to seek the highest development of state-owned lands in order that they might be placed to their highest and best use and thereby derive greater revenue for the support of the common schools, the university system and

23. Resolution No. 273-6, minutes of the State Land Board meeting of February 20, 1973.

other institutions benefiting therefrom and that in so doing, the economy of the local community...is benefited."

Coal Creek State Forest contains a substantial area of highly productive, commercial timberland. The sale of oil and gas leases could ultimately result in losses in forestry revenue from land clearing (for roads, pipelines, and well platforms), from possible long-term degradation of production due to hydrocarbon pollution of air, water, or soil, or from less-intensive forest land management caused by the splitting of forest land units. Consequently, the State Land Board must weigh the possible loss of state forestry revenue and the damage to environmental amenities against the possible rental and royalty income.

B. Management Considerations

The Kalispell Office of the Division of Forestry, Department of Natural Resources and Conservation, oversees the day-to-day management of Coal Creek State Forest. The overall management direction applied to this forest, as well as to all land classified as State Forest, is specified by state law, the State Land Board, and the Department of Natural Resources and Conservation. In this instance, management direction and consequent activity on the forest have been influenced by its proximity to Glacier National Park, the proposed wild and scenic river corridor along the North Fork of the Flathead, and the values of residents of the North Fork community and other Montanans.

A specific and formalized management plan for Coal Creek State Forest has not yet been prepared. Until such a plan is completed, the present management direction will continue to apply. Specific points follow.

- (1) Sites highly productive of forest products will be managed intensively in order to maximize income to state school funds with full consideration of all resource values under the multiple-use management concept.
- (2) Special management techniques will be applied on certain high quality sites to make resource development fully compatible with resource protection. Cyclone Lake and adjacent areas, state lands bordering the North Fork of the Flathead River, and Coal and Cyclone Creeks are examples of areas requiring special management in order to protect their aesthetic and fishery values, steep slopes, fragile soils, or critical wildlife habitat. A special need to evaluate and protect grizzly bear, Northern Rock Mountain Wolf, and critical big game habitat is recognized.
- (3) All resource management activities planned on Coal Creek State Forest will be fully coordinated with owners of adjacent land and with state and federal agencies having immediate jurisdiction

or expertise over the resources involved.

- (4) Forest management activities directed at wood production will not be conducted in areas which are inaccessible, inoperable, or marginal for wood production, or where other resource values have greater importance and will be adversely affected. This direction will be carried out until such time as improved management techniques permit such activity.
- (5) Coal Creek State Forest will remain open for general recreational use as long as existing resource values are not adversely affected. The DNRC will cooperate with the Montana Department of Fish and Game, the U.S. Forest Service, and all concerned parties in order to resolve specific problems as they occur.
- (6) Improved recreational developments are not planned on state lands within the Coal Creek and Cyclone Creek drainages.
- (7) Vehicle access to Cyclone Lake will not be provided. New roads or cutting units will not be developed within one-quarter mile of Cyclone Lake, although individual tree salvage will be allowed to within one-eighth mile of the lake.
- (8) Roads are not planned for the upper slopes lying south of Coal Creek, the south side of Coal Ridge, and at least the upper half of Winona Ridge.
- (9) Only minor expansion of the existing road system is planned, and no additional loop-type roads will be constructed. Road closures will be made as required for management or resource protection purposes.
- (10) Issuance of special use permits appears undesirable at this time. Each application will be examined individually.
- (11) The only large timber sale planned during the next five-year period will be the South Coal Creek sale, which will involve the harvest of about two to three million board feet of over-mature timber. Timber harvesting will generally be limited to salvage and sanitation types of cuts. Opportunities to conduct thinning and other stand improvement activities will be taken as they become available.
- (12) Insect and disease problems will be evaluated on a case-by-case basis. Whenever possible, direct control, such as by trap trees,²⁴ timber salvage, and other biological controls will be used.

24. The "trap tree" method of insect control involves the use of freshly-cut materials which are more attractive to certain insects and, consequently, attacked first. After infestation, the trap tree or log is normally removed and utilized, and the brood is thereby destroyed.

- (13) Forest fire protection will continue to be provided by the U.S. Forest Service through a cooperative agreement with the state.
- (14) No significant archaeological or historical sites are known to exist within the boundaries of Coal Creek State Forest. If such sites are identified, suitable measures will be taken for their protection.
- (15) The suitability of lands for natural areas under the Natural Area Act of 1974 will be determined prior to any action which may preclude such classification. A marsh, adjoining mountain meadow, and woodland in Sections 34 and 35 have been tentatively identified as a potential natural area (see Figures 1 and 2).

C. Statement of Alternatives

The Department of State Lands intends to offer the tracts for leasing at the next regularly scheduled oil and gas lease sale (March 2, 1976). The lease contract for each of the fourteen tracts will contain special provisions that would prevent surface occupancy in those areas considered to be biologically unique or too ecologically fragile to withstand exploration or development activity.²⁵ The Department may withdraw the tracts from the sale list up to, and including, the date of the sale.

However, in that any sale, if made, is subject to the approval of the State Land Board, it is finally this Board's decision which constitutes the significant and major action which must be assessed under the Montana Environmental Policy Act. The Board would have three alternatives: to approve the sale, to disapprove the sale, or to defer the sale until a later date. Pursuant to his duties, the Commissioner of State Lands will make a recommendation to the Board regarding the alternatives.

The issue considered in choosing between these alternatives is one of balancing possible environmental degradation against a reasonable return to the school trust.

1. Alternative One: Approval of the Sale of Leases with Special Conditions

Each of the oil and gas lease tracts to be offered for sale tentatively will contain the following conditions.

- (1) Refineries - No refinery and/or desulfurization plant will be built within the lease area.

²⁵Potential bidders will have the opportunity to examine such provisions prior to and on the date of the sale. A list of the special conditions will be available from the Department of State Land's offices beginning Feb. 9, 1976.

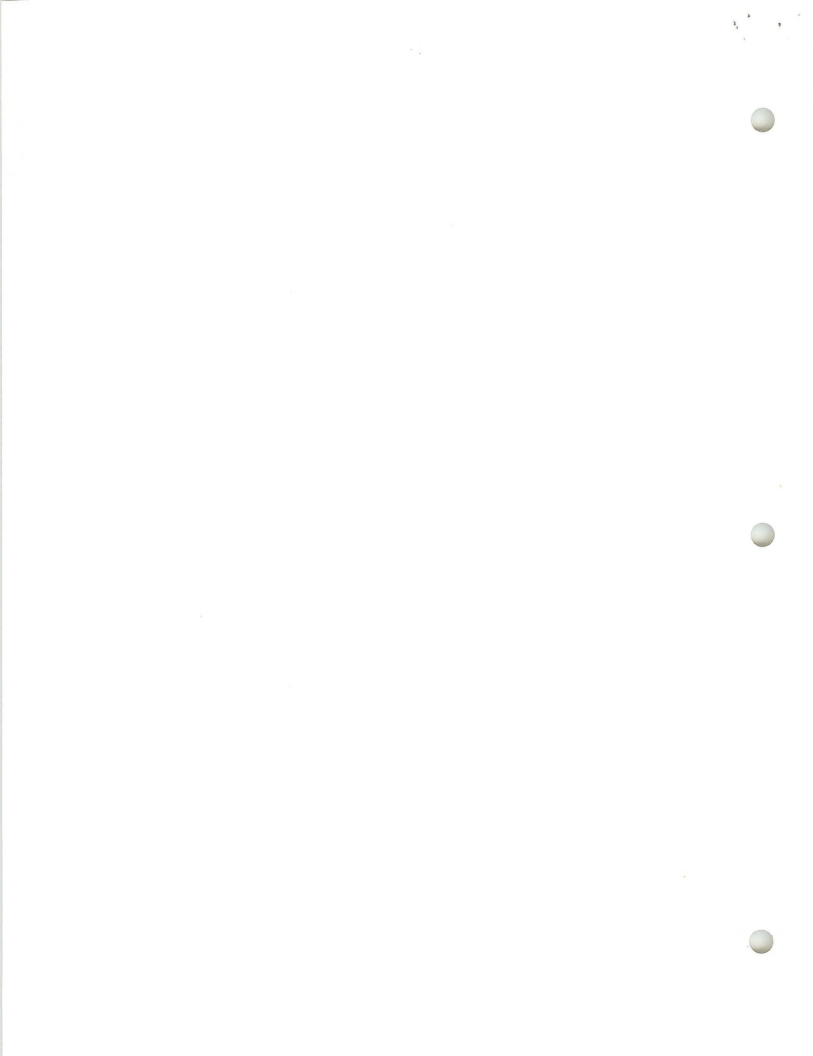
- (2) Housing - Seismic, drilling, or maintenance crews and other personnel associated with oil and gas activity on the forest will not be housed within the lease area. No form of human habitation, including camps, cook shacks, and mobile homes will be allowed.
- (3) Pipelines - The location of any pipeline must receive prior written approval of the Department of State Lands.
- (4) Exploration Dates - Exploration activity will not be allowed on the lease tracts during the periods of May 1 to July 1 and September 15 to December 1 in order to minimize human contact with bears.
- (5) Solid Waste - Solid waste of any nature must be removed from the lease area unless otherwise approved by the Department of State Lands.
- (6) Bear Management - Seismic, drilling, and maintenance crews and all other personnel associated with oil and gas activity on the lease area will be thoroughly briefed on all aspects of bear management, behavior, and habitat needs prior to conducting any activities on the lease area.
- (7) Management Zones - The Forestry Division of the Department of Natural Resources and Conservation has evaluated the resources of Coal Creek State Forest and designated various management zones in which specific and restrictive provisions will be applied to any resource development. To a large extent, these four zones are continuations of the U.S. Forest Service's draft EIS recommendations for those adjoining sections involved in the federal oil and gas lease applications.

Each management zone is shown on Figure 1 and denoted by a number which corresponds with the following text. In order to facilitate an understanding of the restrictions proposed, each zone and the boundary of the lease area have also been superimposed upon an oblique aerial photograph which covers a portion of Coal Creek State Forest (see Figure 2). Further, as a means to show the management restrictions upon contiguous State Forest land, certain of the management zones extend beyond the proposed lease area boundary. Finally, and as noted earlier, the proposed state lease includes a tract of land with private surface ownership. Because the state has no authority over the management of the surface resources, this particular tract has been excluded from the various management zones.

Following are the restrictions for each management zone on Figures 1 and 2.

- (a) Zone 1 (Approximately 10 acres). No surface occupancy²⁶ or any other

²⁶"No surface occupancy" is defined as prohibiting the construction of drilling sites, roads, pipelines, structures, campsites, etc., or other actions requiring alteration of the vegetation or soils. Exceptions to this general statement will be noted below.







activities which may adversely affect the water quality and fishery of Cyclone Creek would be permitted.

- (b) Zone 2 (Approximately 200 Acres). In order to protect the integrity and character of Cyclone Lake, no surface occupancy would be permitted within one-quarter mile of the lake shore. Existing spur roads within one-quarter mile of the lake that are not physically or administratively closed may be used, provided that no road improvement but only normal maintenance is provided.
- (c) Zone 3 (Approximately 4,060 Acres). Surface occupancy would be permitted subject to the following lease provisions.
 - (i) At least sixty calendar days prior to the commencement of both initial activity on the forest and the activities of each subsequent fiscal year, the lessee will provide the Supervisor, Northwest Area, Division of Forestry, DNRC, Kalispell (hereafter called Supervisor) with a detailed written description, hereafter called Annual Operating Plan, of all planned activities during that fiscal year.²⁷ This Annual Operating Plan will include sufficient information and any maps necessary for the Supervisor to assess probable impacts upon surface and other resources during that year's activities.

Copies of the Annual Operating Plan will be sent to the Montana Board of Oil and Gas Conservation, the Flathead County Board of Commissioners, the Montana Departments of State Lands, Highways, Natural Resources and Conservation, Health and Environmental Sciences, Fish and Game, and Community Affairs, and to other interested groups or agencies that request copies. Comments on the Annual Operating Plan will be accepted for thirty days following its distribution and will be utilized in the Supervisor's evaluation of the Plan.

The Supervisor's approval of the Annual Operating Plan will be conditioned upon reasonable requirements to prevent soil erosion, air and water pollution, and unnecessary damages to surface vegetation, wildlife habitat, and other resources and to provide for reclamation of the land surfaces and other vegetation. No work will be done without approval of the Annual Operating Plan and compliance with all appropriate state laws including those relating to critical habitat areas and natural area evaluation.

27. See January 26, 1976, letter from Ted Schwinden, Commissioner of State Lands, to Gary Wicks, Director, Department of Natural Resources and Conservation, regarding surface resources management on Coal Creek State Forest (Appendix C).

- (ii) Existing roads and trails may be used. The location and design standard of all roads, trails, and seismic survey lines to be constructed by the lessee must be approved in writing by the Supervisor prior to construction.
 - (iii) Surface occupancy will not be permitted within one hundred (100) feet of perennial streams, intermittent streams with defined stream channels, springs, or water wells. In addition, surface occupancy will not be permitted within the floodplain of Coal Creek as delineated by the DNRC.
 - (iv) If areas comprising critical grizzly bear, Peregrine Falcon, or Northern Rocky Mountain Wolf habitat are identified on the forest or if potential natural areas or archeological sites are discovered, the no surface occupancy provision will apply, and additional restrictions as may be necessary will be imposed to protect these areas.
 - (v) Should key winter range be identified within the State Forest, the season and character of operations will be modified to provide for management of such area(s). These areas will be delineated by the Supervisor at the time the Annual Operating Plan is presented for approval.
- (d) Zone 4 (Approximately 3,330 Acres). No surface occupancy would be permitted because of steep slopes and fragile soils.

The monetary return to the school trust under State Land Board approval of leases sold with special conditions would be higher than under a disapproval alternative and possibly lower than under a deferment alternative. Since an oil and gas well is capable of tapping the hydrocarbons over a large area, such wells placed in "surface occupancy" zones may economically remove the oil and gas beneath areas where surface occupancy is not permitted. Directional drilling is another possible manner of removing the hydrocarbons beneath "no surface occupancy" zones.

Potential environmental degradation would be greater than that under a disapproval alternative and possibly less than that under a deferment alternative. Such degradation would be minimized by precluding exploration and development activities from areas that are environmentally sensitive (e.g., steep slopes, key wildlife habitat, floodplains, creek bottoms, and lake shores). Resource protection would be further assured by (1) requiring that, wherever possible, only existing roads be used in the exploration phase, and (2) restricting exploration activity to the summer months.

2. Alternative Two: Disapproval of the Sale

If the State Land Board finds that the sale is not in the best interests of the State of Montana, it may not approve the sale. The potential return to the school trust would remain at its present level, which is less than

that under the approval alternative. However, under current management, the fourteen tracts return an intermittent but significant sum through timber sales, and grazing and cabin site leases. Possible environmental degradation would be the least under this alternative. (The same effects would result if the Department of State Lands withdraws the tracts from the sale list or rejects all bids.)

3. Alternative Three: Deferment of the Sale

If the State Land Board defers sale of the tracts, they could again be offered for sale at a later date. Deferment may allow the following studies on "threatened" or "endangered" species, water quality, and natural area designation to be completed.

- (1) Border Grizzly Project - Deferment would eliminate a potential source of conflict with bear ecology studies in the Whitefish Range. A second summer of habitat studies in the Whitefish Range is scheduled in 1976. Longer-range, project objectives include a study of the role of fire in creating grizzly habitat, a study of the relationship of the grizzly bear to the shrub *Vaccinium*, and studies in bear biology. Specific answers being sought include: (a) identifying areas that are critical to the grizzly and should not be subject to human disturbance, and (b) determining grizzly behavioral response to disturbances including logging, seismic, and exploratory drilling activities.
- (2) Wolf Recovery Team - Deferment would prevent immediate conflicts with "recovery area" studies in the Whitefish Range.
- (3) Flathead 208 Study - The field portion of this study is scheduled to be completed by late fall 1976, however a one year extension is likely. Deferment would allow the collection of baseline water quality data prior to oil and gas exploration. Hence, parameters for measuring pollution levels would be established. The 208 study includes inter-agency cooperation (state and federal) on the collection and analysis of chemical, physical and biological water data for Coal Creek and other tributaries of the North Fork of the Flathead River.
- (4) House Bill 622 - As with the 208 project, deferment may prevent conflicts with this water quality study. One objective of this effort is to evaluate water quality impacts on the Flathead drainage resulting from development at the proposed Cabin Creek Coal Mine. Results of this study are to be presented to the Montana legislature in January 1977.
- (5) Natural Areas Investigation - The "no surface occupancy" provisions for Zones 1, 2, and 4 and the "natural areas" considerations in Zone 3 should ensure compliance with the Natural Areas Act, and the rules and regulations adopted pursuant to it. However, the 1976 field season would allow the Forestry Division of the DNRC and possibly a natural area investigating team to conduct a more intensive natural area assessment within the proposed lease tracts.

Deferment would also allow the state to try to arrange for a joint leasing date with the federal government. Joint leasing could

possibly maximize price bidding on the State leases. If the State Land Board were to approve a lease sale for the fourteen state tracts, prior to federal approval of leasing the other 236,000 acres, bidding on the state tracts may be depressed, since the applicant has indicated that it must have the federal tracts in order to satisfactorily complete exploration activities.

Until the State Land Board chooses to approve a sale, no environmental impacts would result. At that time, depending upon technological advances and increased resource data, environmental degradation could be less than that associated with current approval of the sale of leases with special provisions, but would be more than that under a denial alternative.

Under deferment, the return to the school trust fund would remain unchanged for the immediate future. Over time, however, the potential return could be increased if the rate of appreciation of oil and gas exceeds the interest rate on school trust investments.

If the State Land Board defers selling the proposed leases upon Coal Creek State Forest but the Bureau of Land Management does lease adjoining federal tracts, the potential return to the school trust could be affected. If nearby federal tracts were found to overlay marketable quantities of oil and gas, the return to the school trust by deferred leasing could be enhanced. Bids may be higher in that the probability of discovering oil and gas under state land has become greater; eventual royalties may also be higher in that the price of oil and gas would likely have increased in the interim. Conversely, if no or non-marketable quantities of oil and gas were found under the federal leases, the return to the school trust by deferred leasing of the state tracts could be reduced or eliminated in that future bids may be lower or not offered.

V. ENVIRONMENTAL IMPACTS OF ALTERNATIVE ACTIONS²⁸

A. Alternative One: Approval of the Sale of Leases with Special Conditions

A detailed and site specific analysis of all the impacts attendant to the granting of oil and gas leases is, at best, difficult. Those impacts associated with the initial seismic work comprise the only aspect of the operation that can be assessed with any certainty. However, since existing roads should be sufficient for this effort and it involves a nondestructive procedure, the impacts would be minimal.

The most significant environmental problems associated with granting the leases would result from exploration necessitating drilling and any subsequent development. Since the presence, size, and location of any oil and gas reserves are unknowns, any impact evaluations must be fully constrained by this lack of site specific information and limited to reasoned speculation.

The following environmental impacts are expected to result if the State Land Board approves a sale of oil and gas leases on the Coal Creek State Forest. The inclusion of special lease conditions would reduce the total environmental impacts by restricting exploration periods, prohibiting surface occupancy of critical areas, prohibiting on-site housing of any kind and on-site plants or refineries, and providing an opportunity, through the Annual Operating Plans, to review, assess, and regulate activities in areas where surface occupancy would be permitted.

1. Natural Environment

a. Air and Water Quality

Air and water quality should be little affected during the exploration phase. If oil and gas are discovered, there will be some degradation, since required additions to the present transportation system will increase dust and sediment levels.

State laws providing standards for both air and water quality have been adopted and are in effect for all areas of Montana; any activity which would violate these standards must have written prior approval from the Montana Department of Health and Environmental Sciences. Any and all emissions must meet standards set by the Air Quality Bureau of DHES, and,

28. For a more comprehensive evaluation of the impacts associated with granting oil and gas leases in the Flathead area, the reader is referred to pages 44 through 66 of the federal Draft EIS. Many of the general findings are also applicable to the state situation.

similarly, a waste discharge permit must be obtained before any discharge of waste waters to state waters. Solid waste materials must be disposed of in such a way that runoff, leaching, or erosion will not result in a violation of state standards. Further, nonpoint activities, such as construction or road building, must be conducted in a manner that minimizes or eliminates pollution. Finally, plans for sewage disposal facilities must be reviewed and approved by DHES. Individual sewage facilities require a permit from the County Sanitarian.

Approval of a lease with special conditions would provide additional protection of air and water resources through such provisions as the following:

- (1) Written approval of the location and design standard of all roads, trails, and seismic survey lines to be constructed,
- (2) No surface occupancy within one hundred feet of perennial streams, intermittent streams with defined stream channels, springs, or water wells or within the Coal Creek floodplain,
- (3) No surface occupancy within the zones surrounding Cyclone Creek and Cyclone Lake,
- (4) No surface occupancy in areas with steep slopes and fragile soils,
- (5) Submission of the Annual Operating Plan to the Department of Health and Environmental Sciences for its comment, and
- (6) Prior acceptance by the lessee of possible additional operating restrictions to protect critical wildlife habitat or other values.

b. Geology, Soils, and Vegetation

If exploration is all that occurs, impacts to the surface should not be significant. However, if an exploitable discovery of oil and gas is made and development occurs, more extensive and longer-term alterations would result. Bedrock, soils, and vegetation would be disturbed in areas that are used for drill sites, access roads, and other activities that require surface modifications. These areas, for the most part, would be removed from timber, browse, or grass production until such sites are rehabilitated.

Approval of a lease with special conditions would provide some protection of bedrock, soils, and vegetation through such provisions as the following:

- (1) Written approval of the location and design standard of all roads, trails, and seismic survey lines to be constructed,
- (2) No surface occupancy in areas with steep slopes and fragile soils, and
- (3) No surface occupancy in inventoried sites with natural area potential.

c. Wildlife/Fisheries

Habitat for many species would be modified by the oil and gas exploration and development processes. Although, with the imposed special conditions, the exploration activities may not have a serious effect upon most wildlife, the development activities would be detrimental to some species.

Exploration which necessitates drilling and any subsequent development may result in an expanded road system and an increase in human activity. Animals may be displaced from seasonal use areas, and activity patterns would be altered. Confrontations with grizzly bears would most likely occur, and poaching of all animals would probably increase. These activities, individually and collectively, would destroy individual animals and habitat and would not be beneficial to most wildlife species in the area.

The North Fork area is one of low productivity for deer and elk, because winters are severe and winter range is far from optimal. Oil and gas operations would add to the natural stress already upon these animals during the winter months.²⁹

If oil and gas activity should lead to additional roading on the State Forest, moose wintering in the Coal Creek drainage could also be adversely affected. Additional roading could be followed by the plowing of such roads during the winter, exposing the moose population to poaching.²⁹

Research indicates that sanctuary from human activities or population centers appears to be an important habitat requirement for the grizzly bear.³⁰ The sanctuary characteristics of Coal Creek State Forest would be severely jeopardized if oil and gas activity on the forest were widespread. A paper prepared by the Border Grizzly Project points out that

29. Personal correspondence from Otis Robbins, Montana Department of Fish and Game, Kalispell, to Brace Hayden, Department of State Lands, Jan. 16, 1976.

30. C. Jonkel and G. Joslin, 1975, "U.S.F.S. Oil and Gas E.I.S., Flathead National Forest," a paper prepared by the Border Grizzly Project, Univ. of Montana, 4 pp. mimeographed.

even small amounts of disturbance could have important impacts on grizzlies, "... especially during the critical May-June period when bears are seeking exposed spring forage and from mid-Sept. through the denning period"³⁰ The May-June period is especially critical because bears are concentrated on less than 90% of their seasonal range due to the snow cover remaining at higher altitudes.

Adverse impacts to the fisheries resource of the area may result if exploration which necessitates drilling and any subsequent development occur. Such impacts could result from salt water or oil spills or from sedimentation created by poorly located and/or constructed roads, drill sites, or pipeline routes (see Appendix B).

Existing water quality statutes would regulate and subsequently reduce the impact of those actions which may affect the wildlife and particularly the fisheries resources. Approval of a lease with special conditions would provide additional protection of the wildlife and fisheries resources through such provisions as the following:

- (1) No construction of camps, housing, or industrial plants within the lease area,
- (2) No exploration activity from May 1 to July 1 and from September 15 to December 1,
- (3) Removal of all solid waste from the lease area,
- (4) No surface occupancy in critical habitat of "threatened" or "endangered" species once inventoried,
- (5) Modification of the season and character of operations to protect inventoried key winter range,
- (6) Retention of the wildlife habitat values in the three "no surface occupancy" zones, and
- (7) No surface occupancy within one hundred feet of perennial streams, intermittent streams with defined stream channels, springs, or water wells or within the Coal Creek floodplain.

The specific intention of the first three provisions is to minimize human contact with bears.

d. Noise

A certain amount of noise would result from the operation of trucks, drilling rigs, pumping stations, and construction and other equipment. These temporary impacts would occur during both exploration and development, although, depending upon the size of any oil or gas discovery, the impacts could be expected to be more pervasive during the development phase.

2. Social/Economic Environment

The social and economic ramifications of exploration and development in Coal Creek State Forest, along with the changes which are already occurring in the area, are expected to produce both positive and negative impacts. These impacts would probably be minor during exploration, but would become more significant if a development phase results. The magnitude of the impacts would, of course, depend on the size of the reserves and the extent of any development activities.

Direct benefits would accrue to the state and residents of Flathead County in the form of increased jobs, local tax base, and income to the various state trust funds involved. Increased human and economic activity would also create greater pressure on and demand for housing, recreational facilities, and public services. For example, based on current enrollment and recent growth trends, which indicate an increasing student population through 1985, projected school enrollments for the Columbia Falls district are at or over the capacity of existing and planned facilities.³¹

Initially, rather than live in the immediate North Fork vicinity, most of the increased population would probably choose to reside in or near Columbia Falls where services and amenities are more available. From all indications, however, the present lifestyles of the North Fork area residents would nonetheless be significantly altered should development take place.

The concern of the North Fork residents for preserving their way of life is understandable and acknowledged. Any development there would bring changes in an area where electricity is available only through the use of individual generators and telephone service is limited. The addition of telephone and power lines from Columbia Falls and the anticipated increase in human activity and vehicular traffic would change the present primitive character of this area toward that of a residential/resort area.

31. Flathead County A.P.O. Staff, Flathead County Community Facilities Report, June 1974.

The owner of private land within the proposed lease area may be subjected to some undesirable impacts, since that tract is adjacent to a State Forest area on which surface occupancy would be allowed. Should the owner not allow exploration or development activity on his land, directional drilling under the private land from state surface might make it possible to recover any oil or gas without disturbing the private surface or taking any of this land out of its present use. Nevertheless, increased human activity resulting from any nearby drilling operation would result in noise and dust, and reduce the solitude of the site.

Hunting success for big game species may gradually decline with increased human pressures and the reduction of game populations. Fishing in these drainages could also deteriorate through increased pressures and possible degradation of water quality.

Any development or industrial activities will have an adverse effect on the natural qualities of the area, including scenery, open space, and solitude. The quality of such activities as camping, backpacking, and scenery viewing will be diminished for those who value solitude.

Certain segments of the resident and nonresident population interested in those types of recreation requiring less solitude or a more extensive road network, such as driving for pleasure, could be benefited. Additional access points would also be provided for hunting and, during the winter months, for people participating in snowshoeing, cross-country skiing, and snowmobiling.

Approval of a lease with special conditions would have no effect on the social and economic impacts outside state land, but some protection of the recreational and aesthetic attributes of Coal Creek State Forest would be afforded through such provisions as the following:

- (1) No surface occupancy within the zones surrounding Cyclone Creek and Cyclone Lake,
- (2) Modification of the season and character of operations to protect inventoried key winter range, and
- (3) No surface occupancy on approximately 3,000 acres of currently unroaded areas.

B. Alternative Two: Disapproval of the Sale

Those beneficial and adverse impacts associated with any oil and gas exploration and development would not occur should the State Land Board not approve the sale. The management direction in Coal Creek State Forest would continue under existing laws, policies, and management guidelines but would be revised as additional resource information and new techniques become available.

C. Alternative Three: Deferment of the Sale

During any period of deferment, the impacts resulting from oil and gas exploration and development would not, of course, occur. Should a lease sale be approved by the State Land Board at some future time, the previously mentioned impacts associated with oil and gas exploration and development would be expected. However, additional resource data and advanced technologies could, to some degree, assist in impact analysis and promote better and more efficient methods of resource protection.

VI. RELATIONSHIP BETWEEN SHORT-TERM USES OF MAN'S ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Similar to assessing the environmental impacts of granting the leases, evaluating their relationship to long-term productivity is constrained by uncertainty. If developable oil and gas reserves are not found in the area and preliminary exploration is the extent of any activity, the long-term implications of granting the leases are insignificant. If, however, developable reserves are found, the long-term implications assume greater meaning. Again, an absolute relationship is difficult to establish; further, it would vary by the size and location of any discovery.

A. Within the State Forest

Granting leases with special conditions would mitigate those undesirable actions which may jeopardize the long-term productivity of the State Forest. For example, limiting surface occupancy to areas which, at this time, are largely developed would substantially reduce the likelihood of further encroachment upon the roadless portion of the forest with its attendant resources and values.

Requiring an approved Annual Operating Plan where surface occupancy would be permitted (Zone 3) would also limit activity and help protect the long-term productivity of the area. For example, indiscriminate road and drilling locations, which could affect the productivity of the land for other consumptive and nonconsumptive uses such as timber, watershed, wildlife habitat, and wildland recreation, would not be allowed.

B. Outside the State Forest

This is not to say, however, that granting a lease with special conditions would preclude all negative, long-term productivity implications. Such lease provisions would apply to the State Forest, but would have little bearing upon such possible off-site activity as pipelines, gas-processing facilities, or refineries. Obviously, many local, state, and federal laws would provide regulatory authority. Nevertheless, if a significant discovery were made upon state lands, the resulting off-site development could be significant.

A large, long-term oil and gas development and processing effort would tend to alter the rural character of the area to that of an industrialized area. The influx of necessary construction and operating personnel would create a local demand for more secondary employment. This fact would have certain beneficial economic ramifications. However, any population increase would also require greater social services, housing, and recreational facilities. Population increases in turn would lead to pressures for altering existing land uses. For example, depending on the extent of concomitant land subdividing, one could expect a reduction in the long-term productivity of lands for such alternative uses as farming, forestry, wildlife, or open space.

Oil and gas are valuable natural resources essential to the maintenance

of our present way of life. Both national and statewide direction is toward increasing identification and development of these resources to meet recognized needs. Should oil and gas be discovered within the proposed lease area, their exploitation would, to some unquantifiable extent, alleviate increasing national shortages of these energy sources.

In Montana, the outlook for adequate natural gas supplies is precarious. Montana Dakota Utilities, servicing the eastern one-third of Montana, has enough to fulfill its current demands and meet somewhat greater demands. However, Montana Power Company, which services the western two-thirds of Montana, is dependent upon Canadian imports for 85% of its natural gas.

Canada has adopted a policy of retaining its gas resource for its own use and has given notice that Montana can expect substantially reduced exports and their discontinuation by 1993, if not sooner. In the event of total curtailment of Canadian exports, Montana's present in-state reserves would contribute to, but are not capable of, satisfying this state's demand.

Additional natural gas reserves may be discovered as a result of the proposed oil and gas leasing. Although there are no guarantees, it is possible that, if gas were found, it could be used in Montana. If this were the case, then to some extent Montana's natural gas situation could be eased.

However, the fact that oil and gas are exhaustible is also of great economic importance to the immediate area. It is conceivable that the area's economy, which is largely based on renewable resources, could become more dependent upon non-renewable resources. Consequently, depletion of the oil and gas reserves could cause a sudden decrease in the economic well-being of the area and necessitate resumption of the current pattern of the dependency on renewable resources. The difficulty of any such readjustment is again speculative in that it would depend upon such factors as the size and location of any off-site facilities, the nature of the dependent economy and social services, and the impacts sustained by renewable resources. It may be possible, however, to begin readjustment procedures gradually, before depletion occurs, and problems encountered after depletion should be relatively short-term.

VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The exploration and development of any oil and gas reserves in Coal Creek State Forest would both directly and indirectly commit substantial quantities of resources. Certain materials used in tapping any reserve could be salvaged and recycled; others (e.g., certain portions of pipelines) would be irretrievably committed.

In that specific data are unavailable, this topic is treated qualitatively rather than quantitatively. Obviously, however, as the size of any discovery increases, the extent of the irreversible commitment of resources would increase.

A. Energy

Although the purpose of any exploration and development program is to obtain various energy sources, other energy supplies must be irreversibly committed in discovering, processing, and transporting the product. The products used in developing a reserve require energy to manufacture, transport to the site, and eventually remove from the site. The amount of energy consumed in transporting materials depends upon the method of conveyance and the distance covered. Further, energy is necessary on-site to handle and assemble the various components.

B. Non-Renewable Resources

Depending upon the type and level of development, various non-renewable resources would be irreversibly and irretrievably committed. Among these are fossil fuels, concrete, wire, cable, aluminum, and steel.

In that crude oil and natural gas are non-renewable resources, their discovery and subsequent depletion would constitute an irretrievable commitment. This fact is significant in that domestic production of these two basic fuels has been declining since 1970. The exploitation of each reserve means that future oil and gas consumers must utilize reserves for energy and chemical feedstocks which are probably more expensive, less accessible, and more environmentally risky.

As oil and gas eventually become economically or physically unavailable, it will be necessary to rely on more sophisticated, and perhaps undeveloped, technology to satisfy our energy and chemical needs.

C. Renewable Resources

Commitments of the renewable resources of the State Forest itself would be largely limited through the inclusion of the previously noted special conditions in any lease sold and approved. Nevertheless there would be a certain irretrievable loss of biological productivity. For example, land committed to drill sites or access roads would not be capable of producing timber products and maintaining associated forest values while these activities are proceeding. Therefore, fiber production, wildlife habitat, etc., which are not realized or utilized because of exploration or development efforts are irretrievable resource commitments.

Timber is a renewable resource, and many land-use changes, such as roads and drill sites, are reversible. However, if reclamation of abandoned drill sites or access roads is not complete, it is possible for the long-term productive potential of the land to be reduced. The amount of any reduction must similarly be considered an irretrievable resource commitment.

VIII. INDIVIDUALS CONTRIBUTING TO PREPARATION OF IMPACT STATEMENT

Ahner, Mark, Planning Forester, Flathead Areawide Planning Organization
B. S., Wildlife Management, 1970, Purdue University

Berry, Leo, Chief Legal Counsel, DSL
B. A., Political Science, 1970, Gonzaga University
J. D., Law, 1973, University of Montana

Gaarder, Dave, Economic Research Specialist, DSL
B. S., Agricultural Business, 1974, Montana State University

Gragg, James, Northwest Area Supervisor, Forestry Division, DNRC
B. S., Forest Engineering, 1959, University of Montana

Hayden, Brace, Environmental Coordinator, DSL
B. S., Agricultural Economics, 1969, University of California (Davis)
B. S., Wildlife Biology, 1973, University of Montana
M. S., Resource Conservation, 1975, University of Montana

Jahnke, Jeff, Area Coordinator, Land Management, Forestry Division, DNRC
B. S., Forest Management, 1970, Michigan Technological University

Knudsen, Gerhard, Special Staff, DNRC
B. S., Forest Management, 1966, University of Montana
M. S., Forest Ecology, 1968, University of Montana

Lukes, Anthony, Environmental Coordinator, Forestry Division, DNRC
B. S., Forest Management, 1965, University of Montana

Massman, Carole, Special Staff, DNRC
B. A., English, 1966, University of Montana

Salmonson, Earl, Chief, Forest Management Bureau, Forestry Division, DNRC
B. S., Forest Management, 1958, University of Montana

Solomon, Sharon, Natural Resources Coordinator, Montana Energy Advisory Council
B. S. Wildlife Biology, 1970, University of Montana
M. S., Environmental Studies, 1974, University of Montana

Virag, June, Cartography Bureau, Centralized Services Division, DNRC

The help of Ms. Ann Jenson, Ms. Pam Crocker, and Ms. Eileen Berger who typed the final manuscript is greatly appreciated.

IX AGENCIES, GROUPS, AND INDIVIDUALS FROM WHOM COMMENTS HAVE BEEN
RECEIVED AND DEPARTMENTAL RESPONSES



January 15, 1976

Mr. Brace Hayden
Environmental Coordinator
Department of State Lands
State of Montana
Helena, Montana 59601

Dear Mr. Hayden:

Thank you for soliciting NPCA's comments on the proposed oil and gas leases in Coal Creek State Forest, Montana as presented in the Draft environmental impact statement dated November, 1975.

Because of the proximity of the proposed lease areas to Glacier National Park and because of the critical wildlife habitat which would be destroyed or seriously disturbed by oil and gas development on these lands, the National Parks and Conservation Association would strongly recommend against the granting of these leases.

However, if the Department decides ultimately that this land should be leased for oil and gas development, the announcement of that decision and any actual exploration or development should be deferred until the negotiations between the U.S. and Canada regarding the anticipated transboundary pollution resulting from Rio Algom, Ltd.'s proposed Cabin Creek coal strip mine are concluded.

The U.S. and State of Montana must show the Canadians that we regard maintenance of the pristine quality of the Flathead River and Lake to be of highest priority. Oil and gas development in the Coal Creek State Forest thus could undermine these negotiations.

Sincerely,

T. Destry Jarvis

T. Destry Jarvis
Administrative Assistant,
Parks and Conservation

TDJ/lc

RESPONSE

TO

NATIONAL PARKS and CONSERVATION ASSOCIATION

A. The Department of State Lands does not believe that the lease of the state tracts in question will adversely affect any negotiations between the United States and Canada in regard to the proposed Cabin Creek open pit coal mine. In fact, the opposite may be true.

The State of Montana is not requesting that the Canadians not mine their coal. Rather, the State's position is that, before mining the coal they should analyze the environmental impacts and institute a system of environmental protection that ensures the integrity of the North Fork of the Flathead.

In making the decision to lease or not to lease oil and gas, the State of Montana follows procedures and stipulations required by law. The Montana Environmental Policy Act (MEPA) requires that the action be given full review as to the consequences, alternatives, and mitigation measures. If on completion of the required environmental impact statement, the Commissioner of State Lands and/or the State Land Board feel that exploration and subsequent development cannot take place under appropriate safeguards, the sale of the leases can be rejected. If, on the other hand, leases are granted, the exploration and development must be carried out in accordance with the provisions of the lease and any additional stipulations that the Board may impose.

Therefore, DSL feels that the state has a legally required procedure that ensures maintenance of environmental quality while developing our resources. DSL is asking the Canadians to do no more and is in fact, setting an example which should strengthen, rather than weaken, Montana's negotiating position.



The Big Sky Country

MONTANA STATE HOUSE OF REPRESENTATIVES

REP. ORA J. HALVORSON
DISTRICT NO. 16
244 WOODLAND
KALISPELL, MONTANA 59901

COMMITTEES:
JUDICIARY
TAXATION, VICE-CHAIRMAN

244 Woodland Avenue
Kalispell, Montana 59901
December 2, 1975

Environmental Coordinator
Department State Lands
Capitol Station
Helena, Montana 59601

Gentlemen:

In response to the draft Environmental Impact Statement for the proposed sale of oil and gas leases on fourteen tracts of state land on Coal Creek State Forest, Flathead County, Montana in my opinion this sale of leases is not in the best interest of the State of Montana at the present time. .

Most testimony and public opinion indicates that environmental degradation to this unique area near Glacier National Park would be in greater proportion than the probable monetary benefits that might be derived from leasing for exploration for gas and oil.

These non-renewable natural resources, if they are present, will still be there if a greater need exists at some later date.

Other methods and decisions for alleviating the energy problems facing the world should be explored before this area is considered for development.

Yours very truly,

Ora J. Halvorson
Ora J. Halvorson
State Representative



MONTANA BUREAU OF MINES AND GEOLOGY

BUTTE, MONTANA 59701

OFFICE OF THE DIRECTOR

December 3, 1975

Mr. Brace Hayden, Environmental Coordinator
Department of State Lands
State Capitol
Helena, Montana 59601

Dear Mr. Hayden:

Thank you for your letter of November 26 and the Draft Environmental Impact Statement, Proposed Oil and Gas Leases, Coal Creek State Forest.

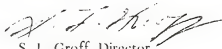
This is a truly interesting statement free of the verbosity common to most. I like the format and presentation.

My comments are in line with those previously made on the related federal lease proposal in this area. The need for energy is critical, and proper handling of the exploration phase would produce only minimal damage to the environment. It is pleasing to note that geophysical exploration will involve vibroseis (vibrator trucks) rather than the shothole method.

It is to be hoped that commercial supplies of petroleum will be discovered. The potential for petroleum reservoirs seems good from a geological view.

There is no reason not to lease the state lands, provided reasonable measures to protect the environment are taken.

Sincerely,


S. L. Groff, Director
and State Geologist

SLG:eh

United States Senate
Office of the Majority Leader
Washington, D.C. 20510

December 4, 1975

Mr. Brace Hayden
Environmental Coordinator
Department of State Lands
State of Montana
Helena, Montana 59601

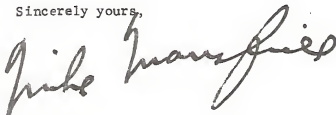
Dear Mr. Hayden:

This will acknowledge your letter of November 26 and the attached copy of the draft Environmental Impact Statement on proposed oil and gas leases in the Coal Creek State Forest in Flathead County.

I appreciate your providing me with the impact statement and I intend to study it over carefully.

With best personal wishes, I am

Sincerely yours,

A handwritten signature in dark ink, reading "Mike Mansfield". The signature is written in a cursive, flowing style. The first name "Mike" is written in a larger, more prominent script, and "Mansfield" follows in a similar but slightly more compact cursive. The signature is positioned below the typed name "Sincerely yours,".

FLATHEAD COUNTY
BOARD OF COMMISSIONERS

P. O. Box 1000
KALISPELL, MONTANA 59901

JOE A. DE LONG
FRANK GUAY
MELFORD R. WOLLAN

December 15, 1975

Bruce Hayden
Environmental Coordinator
Department of State Lands
Helena, Montana

Dear Mr. Hayden:

As Chairman of the Flathead County Board of Commissioners I wish to comment on the proposed oil and gas leases in the Coal Creek area located North of Columbia Falls.

The Department of State Lands Environmental Impact Statement represents some very careful research that would be helpful in the overall pollution of our existing environment and still permit the further development of our natural resources.

Hopefully, regulations would be drawn from these guidelines that would allow orderly development along with facts submitted in the report. I suggest only a minimum of housing within the area be permitted.

In order to continue our way of life our natural resources need to be developed but in a manner that does not destroy the environment and water quality we already have. Hopefully we can achieve this with proper regulations and controls.

If there needs to be extra services from the county, we would like to talk to you before any exploration or development begins as we need to plan ahead in our budgets. We are willing to discuss this matter at any time.

Sincerely yours,

BOARD OF COUNTY COMMISSIONERS

By

Melford R. Wollan

Melford R. Wollan, Chairman

MRW:l f

RESPONSE

TO

FLATHEAD COUNTY BOARD OF COMMISSIONERS

A. The final EIS contains an expanded set of lease "special conditions." Among such conditions is the stipulation that no housing will be permitted within the lease area.

B. DSL understands your budgeting concerns and will promptly arrange a meeting with the Flathead County Board of Commissioners if the proposed lease sale is approved. Also, the Board will be sent a copy of each Annual Operating Plan, which should help in evaluating the need for extra services from the county.

THOMAS L. JUDGE
GOVERNOR

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

HELENA, MONTANA 59601

H. J. ANDERSON
DIRECTOR OF HIGHWAYS

December 16, 1975

IN REPLY REFER TO

D. E. I. S. Flathead
County Oil and Gas Leasing

Mr. Bruce Hayden
Environmental Coordinator
Montana Department of State Lands
1625 Eleventh Avenue
Helena, Montana 59601

Dear Mr. Hayden:

Your invitation to comment on the proposed oil and gas exploration leases in Flathead County, Montana is appreciated. The Department of Highways is concerned about the long range impacts on the transportation routes in the North Fork area.

Federal-aid Secondary Route 486 serves the North Fork area between Columbia Falls and the Canadian border. The route has a bituminous surface to a point approximately twelve miles north of Columbia Falls which varies in width from 21'-34'. The next forty-five mile section is a gravel/graded surface varying in width from 24'-14'. The bituminous surface is nearly four years old while the gravel/graded section was constructed in 1959.

Impacts could vary depending upon traffic generation and the weight of equipment transported. We are keenly aware of deterioration of previously sufficient surfacing caused by activities associated with large scale mineral development. Massive production activity could severely impact limited secondary road and forest highway funds available to Flathead County.

A point you may wish to discuss further in the F. E. I. S. is the relationship(s) between the state and federal actions. Is state action contingent upon federal action? Evaluation of impacts to transportation and mitigation thereof become more costly and complicated when the entire leasing program is visible. Other agencies no doubt have similar concerns.

We would appreciate a copy of the F. E. I. S.

Very truly yours,

H. J. ANDERSON
DIRECTOR OF HIGHWAYS

By Stephen C. Kologi
Stephen C. Kologi, P. E., Chief/
Preconstruction Bureau

GEORGE JUCANOVICH CHAIRMAN
HELENA

32-SCK:REH:mg

cc:
D. S. Johnson
J. J. Keithley
R. E. Hall

WIM M KESSNER VICE CHAIRMAN
BLACK EAGLE

G R COONEY
BUTTE

P L BACHELLER
BILLINGS

BAXTER LARSON
WOLF MOUNT

RESPONSE

TO

MONTANA DEPARTMENT OF HIGHWAYS

A. DSL appreciates the Highway Department's pointing out the potential impacts upon portions of the rural road systems in Flathead County as a result of oil and gas activity under both federal and state leases. Texas Pacific has indicated that wear and tear will be greatest during the exploration and development stages (movement of vibrator trucks, drill rigs, pipe, tractors, etc.) but relatively light during the production stage³². Traffic during this later stage will be largely maintenance crew traffic and two or three trucks loaded with supplies per week.

B. The state and federal actions to date are discussed on pages 1-3 herein. DSL feels that a federal decision to lease or not to lease has little bearing on the respective state decision. Texas Pacific, however, has indicated that obtaining the federal leases will be necessary to conduct exploration activity³².

32. Personal communication between Don Irvine, District Manager, Texas Pacific, and Brace Hayden, Department of State Lands, January 26, 1976.



JERRY L. BRANCH

CONSULTING GEOLOGIST
AND PRODUCER

"FOR GEOLOGY IN DEPTH"

PH: 434-2857

327 8TH AVE. SOUTH

SHELBY, MONTANA

59474

December 17, 1975

Mr. Bruce Hayden
Environmental Coordinator
dept. of State Lands
Helena, Montana

Re: Reply to Environmental
Impact Statement -
Coal Creek Natural Forest

Dear Mr. Hayden:

I've had an opportunity to review the Coal Creek Environmental Statement, and since I am both a landowner-homeowner in the Flathead Valley and a practicing consulting geologist, your document is of interest to me.

This environmental statement does a beautiful job of discussing general facts of the valley - namely amount of rainfall, the spruce bark beetle and the lodgepole pine mistletoe. However, germane facts are badly lacking. For example, have you considered the possibility of the discovery of H_2S gas? This gas is prevalent in Devonian formations and is a possibility. It can cause both mental retardation or death over a wide area if not controlled. It is easy to control and is produced near populated areas but dangerous if not expected and regulated. What are the possibilities of blow-outs or water flows, how much surface pipe would you recommend to prevent same? What are the expected drilling depths? Your report indicates no faulting in the lease area - has anyone bothered to look for faults by field mapping? It appears that no one responsible for this report really knows anything about energy exploration or development and the report does not have important facts and/or specific recommendations.

There are some disadvantages of the applicant's exploration within the Flathead Valley. One consideration is the fact that this is basically a Canadian Company. Canadians are presently taking full advantage of the energy shortage and are not particularly concerned about our Flathead Environment in their Coal Creek Coal Development plans on the Upper North Fork.

Also some environmental damage is to be expected. Natural gas development - if controlled sensibly is relatively clean and little destruction is experienced. It generally only involves access roads and relatively small drilling sites.

Mr. Bruce Hayden
December 17, 1975
Page 2

The most important factor, is the possibility of the Flathead Valley having a clean independent source of energy. In the past several years, we have seen countries and even states and provinces at odds over energy supply and cost. And, the energy crisis is just in its infancy. Soon you will be seeing counties and even cities fighting for energy supply. If the single natural gas pipeline into Flathead Valley was severed or supply drastically reduced, wood and coal would have to fill the gap. This would cause a smoke cloud that would render the valley unlivable. Not necessarily would supply have to be decreased, but a marked increase in natural gas prices would have the same affect because of personal economics of everyone in the valley.

The chances of natural gas discovery - just because there is drilling - are very remote in such a wildcat area, however the Flathead Valley would be blessed by discovery as it would make Flathead County self-sufficient in energy and would preserve the natural beauty of the Valley by saving the forests.

I would certainly recommend that natural gas exploration be permitted however, carefully controlled. I also feel that it should be done by an American Company, and supervised by the Montana Oil and Gas Conservation Commission. This state body knows drilling and what to supervise. The U. S. F. S. people do not even know what a drilling rig looks like.

Sincerely yours,

Jerry L. Branch

cc: Hungry Hills News

RESPONSE

TO

JERRY L. BRANCH 33

A. Finding H₂S or "sourgas" is always a possibility, and such gas has been found mixed with "sweet gas" in recent canadian discoveries along the Rocky Mountain front. However oil and gas technology is sufficiently advanced so as to prevent sourgas from escaping and thus endangering the biological and physical environment, including human lives.

Special equipment would be used to detect the presence of sulfur during the exploration stage. Since H₂S is very corrosive, piping and other material would be equipped with stainless steel if it is present. The sulfur would be removed and marketed.

B. The chance of a blowout in a new area is unknown but a risk is inherent in any drilling operation. Texas Pacific has indicated that its wells would be monitored by a computer technique to give advance notice of pressure build-up. In order to reduce the probability of a blowout a prudent oil and gas operator ensures that more surface piping is laid than is necessary in a wildcat area. The amount of surface pipe, however, does not necessarily control a blowout, but is instead a function of the depth of the well. Generally, the deeper the well, the more surface piping will be laid. Texas Pacific has indicated that it generally uses surface piping 10% longer than the depth of the well. Their experience has shown that this amount of surface piping has proved adequate.

C. Expected drilling depths will not be known until such time as Texas Pacific has completed the exploration stage.

D. Page 14 of the state's final EIS indicates that no faults were mapped in the lease area.

E. See Response 'A' to the latter from the National Parks and Conservation Association.

F. Oil and gas exploration and development on Coal Creek State Forest would be supervised by the Montana Board of Oil and Gas Conservation.

33. Responses to Mr. Branch's letter were written with the aid of Mr. Judson Sweet, Petroleum Engineer, Oil and Gas Conservation Division, DNRC, and Mr. Don Irvine, District Manager, Texas Pacific.



Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601

John S. Anderson M.D.
DIRECTOR

Department of State Lands
Attn: Brace Hayden
State Capitol
Helena, Montana 59601

Dec. 18, 1975

Dear Brace:

Persons in the Environmental Science Division's Air and Water Quality Bureaus reviewed the environmental impact statement (EIS) for the proposed sale of oil and gas leases on 7,759 acres in the Coal Creek State Forest.

Abe Horpestad, a member of the Water Quality Bureau, recommended that the sale should not be approved with standard leases.

"Both Cyclone and Coal Creeks are important Dolly Varden and cutthroat trout spawning areas," he said. "Although their actual contribution to the fisheries of the Flathead River and Flathead Lake is not known, they are important. Development activities could have a significant impact on water quality, although the exploratory phase probably wouldn't."

The special conditions listed in the draft EIS appear to be adequate to protect water quality, he said.

"The conditions include a requirement that an annual operating plan be prepared and reviewed before each year's activities commence. This annual plan should be reviewed by Water Quality Bureau personnel to insure water quality will be sufficiently protected," he said.

No comments were received from the Air Quality Bureau.

Sincerely,

Tom Ellerhoff
Environmental Sciences Division

RESPONSE

TO

MONTANA DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

A. DSL agrees that oil and gas development activities could have a significant impact on water quality, especially if substantial additions to the road system on Coal Creek State Forest are required. Water quality may also be affected in the event of oil and gas spills either at the drill sites or along a pipeline or in the event of aquifer contamination.

Provisions to protect water quality are found in both the rules and regulations of the Board of Oil and Gas Conservation, and the oil and gas rules and regulations of the Department of State Lands. Other safeguards include the special conditions to be imposed on an oil and gas lessee as given on pages 23-27 of the final EIS.

B. The Department of Health and Environmental Sciences will receive a copy of each Annual Operating Plan. The Water Quality Bureau will then have thirty days to review and comment on the plan to ensure that water quality will be sufficiently protected.

427 N. Tracy
Bozeman, Montana 59715

December 23, 1975

Ted Schwinden, Commissioner
Department of State Lands
Helena, Montana 59601

Dear Ted:

I have reviewed the draft Environmental Impact Statement for the proposed sale of oil and gas leases on fourteen tracts of state land in Flathead County. As you know, the Coal Creek State Forest and a total of over 7700 acres are involved. I am particularly concerned that the Natural Areas Act, and its rules and regulations, not be by-passed in the consideration of these proposed leases.

There are clearly many significant natural qualities in the Coal Creek State Forest. The area is potential habitat for the Rocky Mountain wolf and the peregrine falcon, both of which are classified as "endangered species." Grizzly sightings have occurred, so grizzly habitat is a further consideration. Other significant natural qualities include a large burn, geologic features, a glacial lake, and aquatic habitat. A

Page 28 of the E.I.S. states, "Not all areas comprising critical grizzly bear or Rocky Mountain wolf habitat, archeological sites, or potential natural areas have been inventoried." But enough natural qualities have been documented so we know natural area designation is a distinct possibility. These qualities could be impacted enough by leasing activities and surface occupancy so as to "unalterably preclude the designation of a potential State Natural Area." (M.A.C. 26-2.14 (4) - S1430, paragraph 4.) B

I am particularly opposed to the alternative of "leasing with special conditions" -- those conditions being that if natural qualities are identified after the lease is executed, no surface occupancy will apply. This alternative would set a poor precedent and completely undermine the natural area rule regarding "proposals for significant action." I fail to see how natural area protection, or even the process of inventorying, can be effective after a claim is established. Certainly there would be little incentive on the part of the lessee to identify natural areas as such a discovery would hamper the operations. In the meantime the Department of State Lands would be by-passing its responsibility to review natural area potential before action is taken. C

I am strongly opposed to any lease bidding in the near future. If the natural area rules are to be followed, the Department should conduct resource evaluations in greater depth to find if any or all parts of the area should be proposed for natural area designation. Bidding should not take place until such a study is completed. D

Sincerely,

Dorothy Bradley

cc: Brace Hayden
Bill Quarter

RESPONSE

TO

REPRESENTATIVE DOROTHY BRADLEY

A. Natural area possibilities have not been bypassed in the consideration of the proposed leases. By preventing development in proposed Zones 1, 2, and 4, the natural resource habitat qualities of the large burn, geologic features, glacial lake, and aquatic habitat mentioned would be protected. The restrictive lease provisions for Zone 3 require approval of the Annual Operating Plan prior to constructing any roads, seismic trails, and related facilities, thereby providing for protection of all springs, streams, floodplains, steep slopes, and fragile soils. Also in Zone 3, prior acceptance would be required of the lessee of additional restrictions as may be necessary to protect any critical grizzly bear, Peregrine Falcon, or Rocky Mountain Wolf habitat, archeological sites, or natural areas that may be found during the lease period. The area tentatively identified in the draft EIS as a possible natural area (in Sections 34 and 35) has been specifically deleted from the "surface occupancy" category in the final EIS by placing the area in Zone 4 ("no surface occupancy"). DSL therefore believes that the Montana Natural Areas Act and the rules and regulations adopted pursuant to it have been complied with.

B. DSL agrees that future natural area designation of specific sites within the fourteen tracts proposed for leasing is a possibility. In the event that the lease sale is approved, DSL feels that the special lease conditions will protect against "unalterably precluding" the future designation of a State Natural Area within the leased tracts.

C. We agree that there would be little incentive for the prospective lessee to identify a potential natural area. Such responsibility lies with the state and, more specifically, with the surface resources managers of the State Forest -- the Forestry Division of the DNRC. The lack of funds, manpower and specific state-wide guidelines for identifying such areas has prevented the in-depth resource evaluation needed to identify all potential natural areas within the lease area at this time. A good faith effort, however, has been made to comply with the Natural Areas Act under the circumstances.

D. To date, the only specific proposal or substantive indications that natural areas may be present have been raised by the Forestry Division of the DNRC. DSL agrees that resource evaluations in greater depth are needed, but also recognizes that the initial assessment has resulted in the exclusion of areas where natural areas may exist. Should leasing in accordance with the recommended special conditions be carried out, DSL believes that no action which "unalterably precludes the designation of a potential State Natural Area" will result.



MONTANA DEPARTMENT OF COMMUNITY AFFAIRS

Capitol Station, Helena, Montana 59601

Thomas L. Judge
Governor

December 23, 1975

MEMORANDUM

TO: Brace Hayden *BH*
FROM: Barbara Garrett
RE: Draft Environmental Impact Statement, Proposed Oil and Gas Leases, Coal Creek

The E.I.S. for the Coal Creek proposed gas and oil leases is not adequate for planning purposes because development levels under the lease terms could range from seismographic data gathering to oil and gas production. If, in fact, an E.I.S. is suppose to provide public information and the proposed action is so broad as to make discussion possible in only most general terms, why do an E.I.S.? Why do numerous E.I.S. statements for numerous gas and oil leases that contain the statement, "The magnitude of the impacts would, of course, depend on the size of the reserves and the extent of any development activities." This is obvious and so is the fact that the nearest community will incur the most impacts, if there are any impacts. Why can't bidders for an 'exploration lease' be assured that if oil and gas were discovered, they could also receive the 'development lease'? If this could be done there would be opportunity to do an E.I.S. which could reasonably address community impact. If it is impossible to change governmental procedures so that informative social and economic E.I.S. sections can be written, why not do a programmatic E.I.S.

A

B

If a community is going to direct its future then planners need to know what to plan for - how many people, when, and how rapidly might population influx occur. This information is basic and lacking in the Coal Creek E.I.S.

C

Thank you for the opportunity to comment.

BG/ke

RESPONSE

TO

MONTANA DEPARTMENT OF COMMUNITY AFFAIRS

A. An EIS was prepared for the proposed oil and gas leases because DSL felt that the sale of the leases was a major and significant action as defined by Section 69-6504 (b) (3) of the Montana Environmental Policy Act. An EIS was prepared instead of a programmatic review because the action involves substantially different impacts than those resulting from the majority of oil and gas leases on state lands.

DSL shares the concern of the Department of Community Affairs (DCA) with regard to the adequacy of the draft EIS for planning purposes. Due to continued uncertainty about long-range impacts, the final EIS suffers from the same lack of specifics. However DCA and other planning agencies will receive a copy of each Annual Operating Plan, which should assist such agencies in their long range planning endeavors.

B. Although nothing in the Montana statutes (Chapter 17, Title 81) specifically prevents the splitting of oil and gas leases on state lands into the exploration and development phases, a careful reading of the law leaves little doubt that the legislature envisioned such leases to cover both activities. For more analysis of the lease-splitting issue, see Responses B and C to the Environmental Information Center's letter.

C. DSL agrees that basic information as to "how many people, when, and how rapidly might population influx occur" is lacking in the EIS. Most of these data simply do not exist at the present time nor could be predicted with certainty. Don Irvine, District Manager for Texas Pacific, however estimates that maintenance crews would be comprised of from 10 to 15 people and that a plant would employ from 15 to 25.

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

P. O. Box 970, Bozeman, Montana 59715

December 24, 1975

Mr. Brace Hayden
Environmental Coordinator
Department of State Lands
Capitol Station
Helena, MT 59601

Dear Mr. Hayden:

The Soil Conservation Service has reviewed the draft environmental impact statement for proposed oil and gas leases--Coal Creek State Forest. We have no comments to offer regarding this draft statement and we appreciate the opportunity to review it.

Sincerely,

for Frank J. Haderlie
Van K Haderlie
State Conservationist

RECEIVED
'75 DEC 26 AM 9:53
STATE OF MONTANA
DEPT. OF STATE LANDS
HELENA, MONTANA 59601





IN REPLY REFER TO:

L76

United States Department of the Interior

NATIONAL PARK SERVICE
Glacier National Park
West Glacier, Montana 59936

December 24, 1975

Mr. Bruce Hayden
Environmental Coordinator
Department of State Lands
Helena, Montana 59601

Dear Mr. Hayden:

Your invitation to review and comment on oil and gas leases on the Coal Creek State Forest is appreciated.

The fact that you consider the State assessment an extension of the assessment made by the Flathead National Forest for oil and gas leasing in the North Fork has been noted.

The following comments by the Deputy Assistant Secretary of the Interior to the Supervisor of the Flathead National Forest reflects Glacier National Park's interest in the North Fork oil and gas leasing. This interest is primarily associated with the possible effects on regional wildlife ecosystems, and especially those relating to critical habitat of the threatened grizzly bear and the endangered Northern Rocky Mountain Wolf.

"There seems little doubt that much of northwestern Montana, including the lands with lease potential, contain critical habitat for the grizzly. We are now attempting to delineate these areas and anticipate soon issuing a formal proposed determination of Critical Habitat for the grizzly, pursuant to Section 7 of the Endangered Species Act of 1973. It will take substantially longer; however, to make recommendations relative to the kinds of activities that may be detrimental to such habitat.

The Border Grizzly Committee headed by Dr. Charles Jonkel of the University of Montana has recently been formed. This Committee is comprised of representatives of some 10 United States and Canadian Federal, State and Provincial agencies. The Committee is charged with investigating the ecology of the grizzly. We have requested the Committee to place emphasis on:



- a. Identifying areas that are critical to the grizzly and should not be subject to human disturbance.
- b. Identifying areas that do not appear to be important to the bear's survival and which may be exploited; and
- c. Determining the type of activities that can or cannot be tolerated by the grizzly in its critical habitat.

We plan to give a similar charge to the recently established Recovery Team for the Endangered Rocky Mountain Wolf, which inhabits part of the same area. In addition, we are drafting a Notice to be placed in the "Federal Register" seeking advice from other knowledgeable persons concerning "Critical Habitat" for the grizzly and have queried the affected States and Federal agencies. These studies will require approximately two years to complete.

The alternatives should include, in addition to issuance or denial of leases, deferral of leasing pending completion of habitat determination for the grizzly bear and the Northern Rocky Mountain Wolf.

The North Fork, including Coal Creek State Forest, contains a unique assemblage of wildlife which interact with the Glacier ecosystem component. Some may adapt to human presence, while others may not. Loss or alteration of any ecosystem component would severely detract from the area and be in distinct conflict with the value of Glacier National Park as a natural area."

Degradation of Cyclone or Coal Creeks would have an adverse impact on the quality of the water and fishery of the North Fork of the Flathead River which borders Glacier National Park and half of which lies in the park.

There should be little visual impact as viewed from Glacier National Park in that the present State proposal lies behind Winona Ridge.

Ninety percent of Glacier has been proposed for Wilderness classification and on September 17, 1974, the United Nations Educational, Scientific and Cultural Organization designated Glacier as a World Biosphere Reserve, because of the significant wild plants and animals; the opportunity for scientific research on ecosystems and the environment for monitoring trends and conditions in the terrestrial environment.

Your efforts in considering regional wildlife ecosystem components associated with Glacier National Park in issuing, denying or deferring oil and gas leases are appreciated.

Sincerely yours,

Kent J. Wintch
Kent J. Wintch
Acting Superintendent

RESPONSE

TO

U.S. DEPARTMENT OF INTERIOR, NATIONAL PARK SERVICE,
GLACIER NATIONAL PARK

- A. Among the considerations in discussing the deferment alternative, as presented in the state's final EIS, is that such deferment would prevent conflicts with the Border Grizzly Project and the Wolf Recovery Team studies.
- B. DSL agrees that degradation of certain ecosystem components in Coal Creek State Forest would compromise to at least a small degree the value of Glacier National Park as a natural area.
- C. DSL also agrees that degradation of Cyclone or Coal Creeks would have an adverse impact on the quality of the water and fishery of the North Fork of the Flathead River. However, existing laws and special lease provisions would serve to prevent water quality degradation.
- D. DSL would appreciate receiving information from these studies that would be applicable to the proposal at hand.

R. G. Larson
Box 391
Calapella MT

Dec 26th

Gentlemen:

I feel it hard to believe that anyone could seriously consider allowing Gas & oil exploration on the North Fork. To my way of thinking this would be like opening a gas station in a Cathedral. The logging interests along with their partners the Forest Service has already done a fair bit of destroying this area. The B.L.M. should be prosecuted if this is allowed to happen.

The profits from such an enterprise would be of no benefit what so ever to the average person such as me. Its profits would go to the large gas & oil interests and leave the area a much worse mess than the loggers & Forest Service have been able to accomplish.

Sincerely
R. G. Larson

December 29, 1975

Mr. Brace Hayden
Environmental Coordinator
Department of State Lands
State Capitol
Helena, Montana 59601

Dear Brace:

On behalf of the Environmental Information Center (EIC) I wish to comment on the draft E.I.S. for the proposed sale of oil and gas leases on fourteen tracts in the Coal Creek State Forest.

After review of the E.I.S. and the attached oil and gas regulations we would recommend that the lease application be denied. Our recommendation is based primarily on matters of policy. The North Fork of the Flathead is a unique area of immeasurable natural and social value. As habitat for endangered and threatened species as well as the western boundary of Glacier Park, the potential of large scale development in the area has national implications. In addition, there is no demonstrated need for the oil and gas. Admittedly, there is a demand for more energy and this demand can be equated with need if we assume that our present material standard of living must be maintained. This assumption is unacceptable. There is an urgent need in our society to shift to less consumptive, and hence less destructive, patterns of living. There is insufficient emphasis in the E.I.S. on energy conservation and the use of renewable energy sources.

The E.I.S. is generally lacking in site-specific data and impact analysis. We are certainly appreciative of why this is so. The actual exploration phase will have little impact and unless specific development sites are later identified there can be no on-site evaluation. This very fact makes a compelling case for denial of the lease application with subsequent issuance of a special use permit for exploration or, at the minimum, issuance of the lease for exploration purposes only. I realize that "lease-splitting" was discussed and dismissed on page 10 of the E.I.S. on the basis that the bidder would not offer as high a price. However, if exploitable oil and gas reserves were found during exploration the price for development could be raised far above the amount bid for

exploration with only the potential for finding developable reserves. In other words the "...largest measure of legitimate and reasonable advantage to the state" could actually be achieved by splitting the lease. In view of this potentiality plus the obvious need for a meaningful impact analysis the E.I.C. believes that some form of lease-splitting (via a special use permit or otherwise) is highly desirable if the actual alternative of denial is not selected. In reviewing 81-1701 RCM 1947 and the applicable regulations I am unable to find a specific legal prohibition to lease-splitting.

B
(Cont'd)

We wish to offer some specific comments on the E.I.S. It appears that the oil and gas leases are being viewed in a vacuum apart from other major foreseeable developments. Specifically, we believe that the cumulative impacts of large-scale oil and gas development along with possible coal mining in Cabin Creek should be carefully analyzed.

C

We are supportive of the concern expressed in the E.I.S. for the protection of critical and fragile areas. I would remind you, however, that "after-the-fact" zoning never works. If critical sites are discovered after development has begun the chances for serious protection are minimal. There must be an inventory of these sites, including any potential natural areas, before the issuance of any leases. This is crucial if the important purposes of the Natural Areas Act are to be fulfilled. Along this line, the land use plan for the Coal Creek State Forest should be completed before major and potentially non-conforming uses, such as industrialization, are allowed.

D

The E.I.S. is devoid of specific reclamation procedures and assurances. If development proceeds what, if any, standards apply and how are they enforced? Is the applicant required to pay a reclamation bond?

E

While the E.I.S. points out the many adverse impacts associated with large-scale energy development in a pristine, semi-primitive environment the thrust of it seems to be that there isn't much choice but to approve the leases with conditions on subsequent development. Although the conditions appear to be good this decision is highly premature. A more appropriate sequence of decisional steps is as follows:

F

- (1) complete resource inventories with emphasis on critical areas;
- (2) integrate these data into a comprehensive land use plan for the forest;
- (3) grant a special use permit for oil and gas exploration on existing roads if it is consistent with the management direction for the forest; and
- (4) prepare a site-specific E.I.S. on the issuance of a development lease if exploitable reserves are discovered.

We have appreciated the opportunity to comment on the draft E.I.S. and look forward to receiving the final.

Sincerely


Bill Cunningham

Staff Coordinator

cc. Rep. Max Baucus

Andy Lukes, Division of Forestry

C. M. Knudson, Dept. of Natural Resources

RESPONSE

TO

ENVIRONMENTAL INFORMATION CENTER

A. DSL concurs that American society must shift to a less consumptive pattern of living. When viewed in the light of present demand, many of our natural resource reserves, especially of oil and gas, are in such short supply that they will become quickly depleted in the coming years.

In view of the recent Canadian gas cutbacks, however, DSL feels that there is a legitimate demand in Montana for additional natural gas supplies. Such demand would remain even if per capita consumption were to decline somewhat. The questions concerning the proposed explorations then might be: Is the demand for gas so great that Montanans are willing to accept environmental deterioration in the North and South Forks drainages resulting from gas exploration and possibly development?; and will the possible contribution of supplies significantly ease or postpone the inevitable transition to renewable energy sources.

B. DSL agrees that, were another EIS written at the "development stage," it would contain more site specific data and impact analysis. A "development stage EIS," however, would signify that lease splitting into the exploration and development stages were feasible under the current leasing laws.

Although nothing in the Montana statutes specifically prevents the splitting of oil and gas leases, a careful reading of Chapter 17, Title 81 leaves little doubt that the legislature envisioned oil and gas leasing on state lands to cover both exploration and development.

Section 81-1701 "... lessee in conducting his exploration and mining or drilling operations ...".

"Lessee" is singular, which could imply that exploration and mining are granted together.

Section 81-1702 "All leases ... shall be granted for a primary term of ten (10) years and as long thereafter as oil or gas in paying quantities shall be produced thereunder ...".

Such lease terms imply that one cannot have an exploration lease without having the right to develop. If one doesn't have the right to develop, how can "... oil or gas in paying quantities ... be produced ..."?

Section 81-1704 "In every oil and gas lease granted ... there shall be reserved to the state a royalty in all oil and gas produced ...".

If the lease were split, no royalties could result from an exploration lease?

Section 81-1711 This section implies development right in that it states that upon completing a productive well, lessee must drill other wells to test, develop, and operate the deposits discovered.

The applicant had the alternative of submitting an application for a prospecting (special use) permit on Coal Creek State Forest. However, it instead requested that fourteen tracts within the forest be offered for oil and gas leasing. A possible reason for choosing the lease alternative might be that a substantial sum of money is needed for exploration of this type. Were Texas Pacific to receive only a prospecting permit and subsequently expend the exploration money, it would have no assurance that it would also receive the development permit in the event oil and gas were discovered.

Historically, most of the revenue that Montana has received from oil and gas leases has come from bid prices, "bonus bids," and delay drilling penalties -- not from royalties.³⁴ A relatively small percentage of state oil and gas leases yield developable deposits. These facts make it important that the state receive the highest price possible on the "exploration lease." Were oil and gas leases split into various phases, "exploration lease" bidders might feel that exploration rights were worth less than those under a "nonsplit lease" and therefore lower the prices bid at the sale.

C. DSL concurs that the EIS has not analyzed the cumulative impacts of large scale oil and gas development and possible coal mining in Cabin Creek. It is difficult, however, to analyze the impact of an operation such as that at Cabin Creek with little or no solid data concerning the proposed mining operation or even whether an operation will become fact. However, DSL does have the assurances of British Columbia's Minister of Mines, Tom Waterland, that "... we certainly are not going to allow pollution of the Flathead ... by mining operations." Further, positive steps are being taken by the United States' federal and Montana state governments to ensure that British Columbia upholds this commitment.

D. For a discussion of compliance with the Montana Natural Areas Act, please see the response to Dorothy Bradley.

All known critical and fragile areas within the proposed lease boundaries are protected by lease "special conditions." The possibility always exists, regardless of the level of inventory taken, that critical areas may be discovered at a date after leasing has occurred. The only certain way to prevent impacts

34. A bonus bid for a DSL oil and gas lease is the amount bid in excess of the minimum of \$1.50 per acre. Bonus bids are paid only for the first year of a standard ten year lease after which the annual rental is \$1.50 per acre. Beginning the sixth year of a lease, a delay drilling penalty is added to the lease rental fee if the lessee has not commenced drilling. From 1913 through 1974 DSL figures show a total of \$42.7 million paid for oil and gas lease rentals and delay drilling penalties, and \$14.5 million paid in royalties -- an almost 3:1 ratio.

to undiscovered critical areas is to prohibit any form of development, based on the premise that any form of development and critical area protection cannot be accomplished simultaneously.

Existing management considerations for Coal Creek State Forest, as presented in the EIS, indicate that oil and gas exploration and development are appropriate uses for such school trust lands.

E. Reclamation assurances are found in the rules and regulations governing the issuance of oil and gas leases on state lands (see Appendix A) and in the rules and regulations of the Montana Board of Oil and Gas Conservation. Further assurances regarding these specific leases would be given in the requirement for an Annual Operating Plan and subsequent review.

The applicant is required to pay a performance bond. Such a bond includes provisions to ensure reclamation of lease areas disturbed by oil and gas activity. Please see page 9 of the final EIS.

F. DSL agrees that the sequence of decisional steps as outlined would be optimal with respect to multiple use resource management. A specific and formalized management plan for Coal Creek State Forest has not yet been prepared, however until such a plan is completed, the present management direction will continue to apply. Specific points for such management direction are found on pages 21-23 of the final EIS. Also, if the deferment alternative discussed in the final EIS were chosen, steps (1) and (2) might be more fully achieved.

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UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

R-1

Missoula, Montana 59801

8420

January 7, 1976



Brace Hayden
Environmental Coordinator
Dept. of State Lands
Helena, MT 59601

Dear Mr. Hayden:

Thank you for the opportunity to review the draft E.I.S. (11-26-75) for the proposed sale of oil and gas leases in the Coal Creek State Forest.

The alternatives presented and the indicated environmental impacts and concerns expressed are generally the same as outlined in Forest Service's Draft E.I.S. (6/19/75); the major differences being your inclusion of a "deferment" alternative and the special consideration you've presented regarding the grizzly and northern Rocky Mtn. Wolf. The Forest Service's final E.I.S. will discuss both of these points in detail.

Alternative One (b), Approval of Sale--Leases with Special Conditions--appears to be adequate to protect the surface resources on the State lands and is not contrary to our goals on National Forest lands.

Two important studies have been instigated since our draft E.I.S. was released, i.e., The Border Grizzly Project and the Flathead Drainage 208 Project. Both of these projects will provide baseline information which will result in better management direction and control for not only oil and gas exploration and development but other activities as well.

Any exploration that occurs will take from two to four years. As you've pointed out, minimum impacts are anticipated from this activity. Both of the above projects, within two years, should provide substantial data that can reinforce additional provision or restriction for developmental activities, should they ensue.

Sincerely,

Steve Yurich
STEVE YURICH
Regional Forester

STATE OF MONTANA



DEPARTMENT OF

FISH AND GAME

Helena, Montana 59601
January 14, 1976

Mr. Brace Hayden
Department of State Lands
Helena, Montana 59601

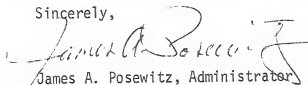
Dear Brace:

As requested, our department has reviewed the draft environmental impact statement on oil and gas leasing on state lands prepared by your department and the Department of Natural Resources and transmitted to us on December 2, 1975.

This review was conducted by our regional office in Kalispell and a copy of their comments is attached for your information and use.

Having discussed this problem many times with personnel of State Lands, I would like to reiterate the necessity of developing a procedure where any actions proposed or taken subsequent to exploration such as development of fields, refineries or desulphurization plants not be made automatic concessions because the exploration leases were granted.

Sincerely,


James A. Posewitz, Administrator
Environment and Information Division

JAP/sd
Enc

cc: Otis Robbins
Environmental Quality Council

RECEIVED
JAN 15 1976
ENVIRON. RESOURCES

- Page 4 - paragraph 2, sentence 1. We believe that the word "east" should be replaced with the word "west". An easterly direction would put the leases in Glacier National Park.
- Page 5 - paragraph 2. This whole paragraph is a means to development that could be catastrophic to natural environments. We would suggest that this section be completely re-written to design specific guidelines to development, production, refinement and marketing. It seems to us that this is a license to proceed without any constraints on the manufacturing level.
- Page 5 - No.3. This entire paragraph leaves a little bit of credibility gap to the reader. Very, very little documentation is evident to lend credibility to the statements.
- Page 7 - paragraph 3, last sentence. We would strenuously object to a blanket statement giving the right of fourteen foot wide strips for road usage in the forest. These could have immense adverse impact on the environment.
- Page 8 - No.b, sentence 1. We would like to see a more specific statement on the number of drilling sites as proposed. Would these be per acre, per section or what?

Page 8 - No.3. Here again the statements appear to be a blanket permit to construct whatever or wherever the leasee may deem suitable. We would object seriously to the construction of stations, access, sites, etc, depending on the number and location of such. G

Paragraph 2. This again appears to be a wide open permit to construct what the leasee desires without consideration of other values; i.e. a railroad or railroads could cross and re-cross the entire area.

It appears at this point there is an attempted write-off of specific details in the proposed leasing of the lands involved. Before specific details can be provided, there must be more specific knowledge of what will be done. We have no alternative but to recommend denial based on such a wide scope of potential problems.

Page 14- paragraph 1. We believe that the sediment that is contributed from logging operations, including roads, ditch run-off, etc., is considerable and do not agree that erosion control measures have been adequate. H

Page 17- paragraph 2. We do not concur with the last sentence in the paragraph. We contend that detrimental effects are known. In 1974 two grizzly bears were legally harvested in or adjacent to oil lease areas --- one on Demers Ridge and one on the ridge above Cyclone Lake. I

No matter what is done about the oil and gas exploration work, if it is done it will not be beneficial in any way to wildlife on the area. This is an area of low productivity and survival for deer and elk and it can only be detrimental to put more stress on these animals. J

We would point out on page 20, No.2, that the statement quotes Section 81-103-R.C.M., 1947 "the board shall manage these lands --- without impairment of the productivity of the land, with consideration being given to the relative values of the various resources". K

Page 22- No.5. We believe it is in the best interest, as well as management directions, that the Department of Natural Resources, the Department of Fish and Game and the U.S. Forest Service must disclose plans for roading, timber management, oil and gas leases, etc. far enough in advance and in detail enough to plan for prevention of environmental problems before they occur. This is the only way they can be resolved quickly enough for agencies to solve the problems. Ambiguous and foggy presentations can only lead to unsolvable situations with serious environmental degradation. L

Page 23- We would suggest an addition to the fifteen points as follows:
Timber and brush shall not be cut nor streambanks disturbed within one chain of active streams or larger intermittent drainage draws except at crossings that meet agreement under Montana Statute 26-1501 through 26-1522. All new crossings should be in compliance with new codes.

Page 24- No. 1a. Only special leases should be granted eliminating all standard leases.

Nearly every drainage in the North Fork has a wintering population of moose. Additional roading in the area will lead to plowing of these roads in winter exposing the moose population to additional poaching. The North Fork area is one of the better black bear areas in the State and is also grizzly bear habitat. Food storage and garbage accumulations will no doubt trigger bear-people problems. In addition, the presence of people in carrying out oil and gas exploration will, no doubt, affect grizzly bears. Over the life history of gas or oil facilities we can envision the demise of the grizzly in the area.

In summation, we believe that the natural resource values in the North Fork area are of such magnitude that we would strongly urge the leases be denied.

Otis Robbins, Jr.

Otis Robbins, Jr.

OR:ns

RESPONSE

TO

MONTANA DEPARTMENT OF FISH AND GAME

A. DSL shares your concern that any post-exploration phase of oil and gas activity not be an automatic concession. Constraints on both the development and manufacturing level would exist through the special lease conditions. Further constraints exist in the form of permits required from other agencies such as the Department of Health and Environmental Sciences.

B. This error was corrected in the final EIS.

C. Leasing with special conditions would mitigate all adverse impacts of oil and gas activity on Coal Creek State Forest. DSL does feel, however, that the lease conditions as outlined in the final EIS would prevent a "catastrophic" impact upon the natural environment.

D. Mr. Robbins has indicated that the "credibility gap" refers to industry in general.³⁵ He suggests that perhaps the applicant is more certain about the possibility of finding oil and gas within the proposed state and federal lease areas than it has indicated. DSL realizes that "credibility gaps" between industry and regulatory agencies do exist in some cases. Such agencies must therefore have access to technically competent people in order to be able to detect such instances. For questions concerning oil and gas matters, DSL depends on the technical expertise of the Montana Oil & Gas Conservation Division (DNRC). A member of the Division was present at the DSL's initial meeting with Texas Pacific, and the Division was consulted in preparing the final EIS.

The description of the proposed action in Chapter 2 is admittedly sketchy; however, given the nature of rank wildcat operations, more description could not be given. Additional information as to the nature of the proposed oil and gas operation may be found in Mark Ahner's report appended to the federal draft EIS and also on pages 44 to 54 of that EIS. Also, please see DSL's responses to comments received on the state draft EIS from the Department of Highways, Jerry Branch, and the Department of Community Affairs.

35 Personal communication between Brace Hayden, Department of State Lands, and Otis Robbins, Regional Information Officer, Montana Department of Fish and Game, Kalispell, January 24, 1976.

- E. The draft EIS was in error on this point. Upon checking with the applicant, DSL amended the final EIS to read as follows:

During the later stages of seismic reconnaissance, the applicant may request to cut 14-foot-wide strips through the timber in order to more precisely locate the cable. Such strips would not be used as roads as the cable would be laid in place by hand.

DSL acknowledges that the cutting of such strips may have adverse impacts on such resources as wildlife, timber and water.

- F. Normally, regulations of the Montana Board of Oil and Gas Conservation allow no more than one well site per section of land.³⁶ Texas Pacific feels that this requirement allows for more than the number of wells conceivably needed on the proposed state lease area. A large find of oil and gas on the state lease area probably could be tapped with, at most, four well sites.³⁷

- G. DSL feels that, with the inclusion of special lease conditions, the lessee would not have the right to construct "whatever or wherever." Surface occupancy would be on approximately 47% of the lease area, and the state would retain the final authorization as to the location of all pipelines within the lease area. Furthermore, desulfurization plants, refineries, and living areas would not be allowed within the lease area.

As the final EIS indicates, there is a large amount of uncertainty in the proposal beyond the initial exploration stage. The DSL would, however, retain considerable control over the oil and gas activity should be lease be granted by virtue of the special lease conditions and the Annual Operating Plan requirement.

- H. The forestry Division of the DNRC would appreciate specific information concerning the source(s) on Coal Creek State Forest of considerable amounts of sediment. If needed, additional erosion control measures will be taken.

- I. The Forestry Division of the DNRC, who manage the timber resource on the Coal Creek State Forest, state that no detrimental effects upon such species have been observed as a result

36 Personal communication between Brace Hayden, Department of State Lands, and Judson Sweet, Petroleum Engineer, Oil and Gas Conservation Division, DNRC, January 26, 1976.

37 Personal communication between Brace Hayden, Department of State Lands, and Don Irvine, District Manager, Texas Pacific, January 27, 1976.

of current forest management practices. This does not mean that such practices have not in fact proved detrimental to these species. Therefore, in light of this comment and information received pursuant to circulation of the Draft EIS, DSL has accordingly altered the text of the final EIS. The reader is also referred to the letter from Dr. Charles Jonkel.

J. DSL concurs that oil and gas exploration on Coal Creek State Forest will not benefit the wildlife utilizing the area. The Department of Fish and Game comments regarding deer and elk productivity and survival were incorporated into the final EIS.

K. DSL shares the Department of Fish and Game's concern that the productivity of the land must not be impaired by oil and gas activity. Similarly, DSL agrees that relative values of various resources besides oil and gas must be considered as part of the Board's decision whether to approve, disapprove, or defer the lease sale. Such concerns are demonstrated in the preparation of this EIS. Without a doubt, other resource values will be jeopardized, to varying degrees, if the lease sale is accepted.

L. DSL agrees that sound resource management on the Coal Creek State Forest and adjacent federal lands require detailed pre-planning between the Department of Fish and Game, DNRC and the U. S. Forest Service in order to prevent environmental problems before they occur. If the oil and gas lease sale is approved, the distribution of the Annual Operating Plan should facilitate such cooperation. DSL is hopeful that it will receive the fullest participation possible from the Fish and Game and other agencies in future planning efforts. With respect to the Coal Creek proposal, every effort has been made to avoid ambiguities given the sometimes imprecise nature of the information available.

M. Please refer to the definition of "no surface occupancy" on page 24 and to the statement on page 27 which reads, "Surface occupancy will not be permitted within one hundred (100) feet of perennial streams, intermittent streams with defined stream channels, springs, or water wells." DSL believes that this provision would extend greater protection to streams and streambanks than requested here, although, of course, compliance with all statutes would also be required.

N. The standard lease alternative has been eliminated. Only leases with special conditions will be offered at the March 2nd sale.

O. DSL shares the Department of Fish and Game's concern with regard to the potential impacts on moose and bears and, in fact, utilized such information in the preparation of the final EIS. It is hoped that the "special conditions" added to the state leases (or similar ones) will also be added to the federal

leases so that, if the North and South Forks areas are eventually leased, the envisioned demise of the grizzly in these areas will not occur.



January 16, 1976

University of Montana
Missoula, Montana 59801
(406) 243-0211

Mr. Brace Hayden, Environmental Coordinator
Department of State Lands
Capitol Station
Helena, Montana 59601

Re: Environmental Impact Statement on Oil and Gas Lease Applications, Nov. 1975

Dear Mr. Brace:

I wish to commend you on the comprehensive, informative draft Environmental Impact Statement prepared by your office concerning oil and gas leases on fourteen tracts of land on the Coal Creek State Forest. I am lamenting the very brief response period allocated to the public for comment and am requesting that your office nevertheless review and consider this statement regarding the border grizzlies which occur in the North Fork of the Flathead.

In general, the EIS could be improved by providing more history and background on specific wildlife species present in the vicinity. Environmental and wildlife **A** research is very important before any potentially disruptive activity is considered, but that is not the way it is usually done. Because no research has been undertaken on the Coal Creek State Forest regarding the grizzly bear, recommendations regarding the grizzly bear resource are difficult to make, and decisions which might possibly modify or destroy grizzly habitat should be postponed.

Under the provisions of the Endangered Species Act of 1973, the critical habitat of threatened or endangered species are not to be adversely modified or destroyed by federal actions or any action even partially or indirectly funded or endorsed by the federal government. How this may apply to the state land on Coal Creek is no doubt unclear.

As you may know, investigations regarding conflict between grizzly

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bears and man, grizzly habitat and the effects of man's activities, are underway by the Border Grizzly Project. Critical habitat delineation as required by the Endangered Species Act is our most urgent concern, but our studies were initiated in the Whitefish Range only in the past summer (1975). A preliminary report regarding this investigation will be available in March, 1976.

Other investigations, either currently underway or slated to begin during the 1976 field season, and which will shed even more light on the status and behavior of the grizzly include: comprehensive compilation and mapping of grizzly observations in this and all areas where the border grizzlies occur; grizzly behavioral responses to disturbances (specifically logging, seismic, and exploratory drilling activities); the positive and negative effects of roads; road management options; and seasonal conflicts between man and bears as related to food availability (or shortage). This information will provide insight into the role which the Coal Creek State Forest plays in the scheme of grizzly range and livelihood requirements, but unfortunately much of it is not yet available. We could nonetheless provide you with interim suggestions for lease stipulations based on our work to date and on data extrapolated from other areas.

In reference to specific points within the EIS, our data indicates that grizzlies can be expected to use all four habitat types which comprise the Coal Creek State Forest. Although extensive observations of grizzly bears have not been recorded within the forest, there is reason to believe that the Coal Creek State Forest comprises at least a seasonal element of the grizzly bear habitat. As investigations regarding grizzly use have not been conducted on the area, we agree with the EIS that a "special need to evaluate and protect ... critical habitat" exists. Because the necessary data are lacking at this time, we urge that the proposed oil and gas

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exploration be delayed until the research is completed. Should it be impossible to delay the exploration, we recommend the following additional stipulations:

1. Activity should be curtailed during the critical May - June period when bears are seeking exposed spring forage and from mid-September through the denning period. Kemp (1974) has shown that even low levels of disturbance will, in time, alter the movements and ranges of individual animals.
2. Camps should not be established in the area. Crews should drive back and forth from settled areas.
3. Seismic crews can be expected to be unfamiliar with bears and less tolerant of any conflict with bears. They should be required to work under strict regulations and be thoroughly briefed on all aspects of bear management, behavior and habitat needs.
4. If additional roads are required during seismic operations, they should be located away from critical grizzly habitat components, destroyed or closed after use, and not connected or looped with other roads.
5. If the production phase is realized, another, more comprehensive EIS should be prepared pursuant to that phase.

Enclosed is a paper which was prepared by our office with regard to the Forest Service Oil and Gas EIS. It may be useful to you in your consideration of the proposed oil and gas leases. Please feel free to contact us at any time if we can be of assistance.

Sincerely,



Charles Jonkel
Border Grizzly Project
Forestry, University of Montana

USFS OIL AND GAS EIS, FLATHEAD NATIONAL FOREST

By

C. Jonkel and G. Joslin

Border Grizzly Project

University of Montana

Grizzly Bears

The grizzly is a known inhabitant of the entire North Fork and South Fork drainages, and, outside of Glacier Park, is managed as a game species throughout those areas by the Montana Fish and Game Department. Little is known of the total grizzly bear numbers in the two drainages, but Jonkel and Cowan (1971) estimated six for the 128 km² (80 mi.²) Big Creek drainage (13 mi² bear), with an apparent higher density in the more open, northern portion of the Whitefish Range. Martinka estimated 36 for a 464 km² (290 mi²) area of Glacier National Park (8.1 mi²/bear), and grizzly sightings are common throughout both drainages. In fact, approximately half of the grizzlies shot by hunters during 1967-1973 in Montana came from those two drainages (Greer 1974).

Grizzly bear habitat in the North and South forks is currently being studied by the Border Grizzly Project, University of Montana (Jonkel 1975), but complete results are not yet available. Preliminary data indicate that important grizzly foods occur at different elevations and on various aspects during spring, summer, and autumn. In general, these sites are either areas which "green-up" very early in the spring (at low elevations and on open, south-facing slopes); moist areas which contain abundant succulent forbs, sedges, and grasses (stream bottoms, avalanche areas, water courses, etc.); open or relatively open areas with abundant Vaccinium or tuber production (burns, timberline, alpine); and certain phases within habitat types which contain abundant bear foods (Mealey and Jonkel 1975). Specific examples would be Bruce Meadows, the Marsten Lookout area, the Peterson Homestead area, etc. Small amounts of disturbance during critical periods could have important impacts on grizzlies, especially during May

June, and early July (low-country), and during mid-September through denning (high country).

Other areas of critical habitat (those rich in foods) no doubt exist, but have not yet been identified; and no measure has yet been made of the type and quality of cover, consistently used travel routes, denning areas, the importance of big game winter kills, ground squirrel or marmot concentrations, and the various logging or roading techniques. In effect, more time must be allowed for research before stipulations for extensive areas can be stated.

Sanctuary from human activities or population centers appear to be important to bears. Polar bears seek isolated capes and islands for sanctuary when the sea ice melts in Hudson and James bays (Jonkel et al 1970, Jonkel 1975) even though hunted relatively lightly in the past two decades. Grizzly bears probably receive similar sanctuary from people in the North and South forks by virtue of the large government land holdings (USFS and GNP). While unproven, the isolation inherent in the large blocks of federal lands probably account for the significant numbers of bears still in those areas. However, even though heavily roaded, and extensively clear-cut, the Whitefish Range of the North Fork drainage appears to have a relatively stable grizzly bear population. The Whitefish Range circumstance could probably be explained by two things; the isolation afforded by being adjacent to Glacier National Park, and being only lightly used by hunters, hikers, and fishermen.

Home range security and adequate cover are obviously afforded in both drainages at present, and until sufficient research data are available for these two areas, as much grizzly range as possible should have restrictions on travel and use, primarily through road management (i.e. seasonal use, closures, destruction, etc.), and reduced commercial activity.

All three North American bear species have similarities in their behavior (Jonkel 1970), one of which is being attracted to garbage dumps, cabins with

food, and campsites with food. As the grizzly bear studies in Yellowstone National Park (Craighead and Craighead 1971) and in Canada (Mundy and Flook 1973) have shown, the grizzly is as prone to this behavior as is the black bear or polar bear. Special care and stringent regulations to avoid the initiation of such behavior (i.e. prevention) is perhaps the best solution for this problem, as bears once exposed to the habit (especially by family training) are particularly prone to continue the habit, and eventually are eliminated because of their behavior.

Recommendations

The grizzly bear is now listed as a threatened species under the Endangered Species Act of 1973. This Act requires that a species so listed, and that species' habitat, must be afforded protection sufficient to ensure its continued survival. Various other federal acts, and the Fish and Game Department's management plan, embody similar goals. However, the research data available to provide guidelines is not adequate, and the USFWS has not yet clarified how it will interpret the Act in regard to protecting critical habitat.

Specific to the EIS on oil and gas exploration in the two drainages, considerable caution should be practiced in allocating permits, with many of the applied for areas denied, and with strict seasonal stipulations on others. Also, all commitments favoring exploration should be made contingent upon an identical EIS review process, and an opportunity for extending or revising restrictions, should fossil fuel be found and developed.

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Response

to

CHARLES JONKEL, BORDER GRIZZLY PROJECT, SCHOOL OF
FORESTRY, UNIVERSITY OF MONTANA

Many of Dr. Jonkel's comments with regard to the grizzly bear and potential impact upon this species were incorporated into the final EIS. DSL is most grateful for the information he provided.

A. DSL agrees that environmental research should be completed before potentially disruptive activity is undertaken on Coal Creek State Forest. If chosen, either the disapproval or the deferment alternative would possibly allow time for the completion of data gathering for the Border Grizzly Project, Wolf Recovery Team water quality studies, and more intensive natural area investigations.

B. Suggestions 1, 2, and 3 have been added as "special lease conditions" for oil and gas leases on the forest. Suggestion 4 may be imposed via the Annual Operating Plan requirement and subsequent review. Stipulation 5 cannot be implemented by DSL since it would necessitate splitting the lease and separating exploration from any development phase. See the response to the Environmental Information Center for the discussion of lease splitting.

Appendix A
Rules and Regulations Governing the Issuance
of
Oil and Gas Leases on State Lands

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RULES AND REGULATIONS
GOVERNING THE ISSUANCE OF
OIL AND GAS LEASES ON STATE LANDS
OF THE STATE OF MONTANA

1. General Provisions

The Board of Land Commissioners is established by the constitution of the State of Montana (Article X, Section 4) to consist of the governor, superintendent of public instruction, auditor, secretary of state and attorney general. It has the authority to direct, control, lease, exchange and sell school lands which have been or may be granted for the support and benefit of the various state educational institutions, under such regulations and restrictions as may be provided by law. Pursuant to the provisions of Section 82A-1101, Revised Codes of Montana 1947, the Board of Land Commissioners is designated the department head of the Department of State Lands, as established by the legislature of the State of Montana. The Department of State Lands has responsibility for the administration of laws relating to state lands.

In the exercise of its powers, the guiding rule and principle of the Board of Land Commissioners is that the state lands are held in trust for the support of education, and for the attainment of other worthy objects helpful to the well being of the people of this state; and that it is the duty of the Board to so administer this trust as to secure the largest measure of legitimate and reasonable advantage to the state.

2. Definitions

When used herein, unless a different meaning clearly appears from the context:

"State" means the state of Montana;

"Board" means the Board of Land Commissioners of the State of Montana;

"Commissioner" means Commissioner of State

Lands, chief administrative officer of the Department of State Lands;

"State Lands" means all lands the leasing of which for oil and gas is under the jurisdiction of the Board;

"Person" means any individual, person, firm, association or corporation or other legal entity;

"Lessee" means the person in whose name an oil and gas lease appears of record in the offices of the Department, whether such person be the original lessee or a subsequent assignee. The term "lessee" also includes, where the context of the rule may indicate, any person who is the apparent successful bidder for an oil and gas lease but with whom a formal oil and gas lease agreement has not been completed and finalized;

"Oil and Gas" means all hydrocarbons and other substances and elements which are present in the earth in a gaseous or liquid form and produced therefrom. It shall not include coal, lignite, oil shale or similar solid hydrocarbons. Nor shall it include minerals, waters, steam or any geothermal resource produced pursuant to a geothermal resources lease issued by the state;

"Standard Lease Form" means the lease then currently in use and approved by the Board;

"Qualified Applicant" means any person who may become a qualified lessee as set forth under rule 5 hereof;

"Department" means Department of State Lands as provided in Section 82A-1101, R.C.M. 1947.

3. Administrative Details and Information

The offices and records of the Department are maintained at 1625 East Eleventh Avenue, Helena, Montana, under the direction and administration of the Commissioner. Requests for information, application for leases and other matters should be addressed to the Department. Payment of all moneys required or permitted un-

by these rules or pursuant to the provisions of any oil and gas lease shall be made to the Department of State Lands. All checks, drafts and money orders shall be made payable to "Department of State Lands, Montana." Sight drafts will not be accepted.

4. Lands Available for Leasing

State lands available for leasing under these rules include any state lands in which the oil and gas rights are not reserved by the United States or other grantor or predecessor in title. Such state lands include those which have been sold but in which oil and gas rights have been reserved, in whole or in part, by the State of Montana, but in such cases where the lands are under lease for grazing, agriculture or similar purposes, care will be taken in issuing the oil and gas lease to protect the rights of the purchaser or surface lessee.

Such lands include all lands owned by the State under navigable lakes or streams.

Unsurveyed lands, including those under lakes and streams, are available for leasing; provided, that any applicant for a lease on such lands shall supply the Department with a legal and sufficient description thereof, by courses and distances (metes and bounds). The Department shall assume no liability or responsibility for the correctness, completeness and validity of such description.

No lease may embrace more than six hundred forty (640) acres, except that any section surveyed by the United States which contains more than six hundred forty (640) acres may be included under one lease.

The land shall be leased in as compact bodies as the form and areas of the tract held by the State and offered for lease will permit. No lease may embrace noncontiguous subdivisions of lands unless such subdivisions are within an area comprising not more than one (1) square mile.

Any person qualified to hold an oil and

gas lease on State lands may acquire, receive and hold more than one lease.

5. Who May Lease for Oil and Gas --Qualified Lessees

Any person, association, partnership, corporation, domestic or foreign, or municipality qualified under the constitution and the laws of the State of Montana may lease state lands for oil and gas purposes; however, all corporations not incorporated in Montana must obtain a certificate of authority to transact business in this State from the Secretary of State. Also, no officer or employee of any agency of the executive Department of state government who is required to inspect or examine oil or gas wells or otherwise to gather field information in regard to prospecting for oil and gas or the production thereof, may take or hold such lease, nor shall any such person become interested in any manner in any oil or gas lease on state lands.

6. Procedures for Issue of Lease

a. A sale of oil and gas leases on state lands normally will be held once in each quarter, on the first or second Tuesday of March, June and December, and on a day in September that will not conflict with the Labor Day holiday. It will be in the Department's discretion to waive a sale on any of these dates if insufficient applications have been received or to postpone if circumstances warrant. In such event a notice of "No Sale" will be published in the Montana Oil Journal or in a publication of general circulation in Montana as provided for in subsection b of this rule. Sale of each lease will be by competitive, oral bidding, and sale will be made and a lease executed to the qualified bidder who makes the highest bid. In the absence of any bid at such sale, on a particular tract, a lease will be issued to the person who first made application therefor in

accordance with these rules. The Department reserves the right to reject any and all bids on any tract offered for lease.

b. Any person who desires that any tract of state lands be offered for oil and gas leasing at sale as above described shall make application for oil and gas leasing on the form prescribed by the Department and then in current use. Blank forms for such applications may be secured from the Department at no cost. Such application shall be, in form, an application for the issuance of an oil and gas lease to the applicant, shall contain, among other things, an adequate and sufficient description of the land sought to be leased, and shall be deemed and considered for all purposes an offer to lease the lands described therein and a bid therefor in the amount of the minimum required first year's rental. There shall be submitted with the application payment of a ten dollar (\$10.00) application fee, and this shall be the only payment required to be submitted with the application; however, each application shall constitute an undertaking to pay, within ten (10) days after the lease sale, the required first year's rental for the lease if at the lease sale the first applicant is the successful bidder therefor. If at the lease sale the successful bidder is a person other than the first applicant, the person shall submit within ten (10) days after the sale the required first year's rental.

In order to permit the necessary time for notice of sale as herein provided, applications should be filed with the Department at least forty (40) days prior to the date fixed for sale, whenever possible. Any application made may be withdrawn by the applicant if request for such withdrawal is received by the Department prior to the time when the second notice of the sale, as hereafter provided, is sent to the publisher, but the ten dollar application fee will not be refunded.

Where more than one application is filed on any one tract, the department shall notify

each person submitting an application subsequent to receipt of the first qualified application, that there is a prior application for that tract and shall return the application fee. Where the first applicant for a tract withdraws his application as provided above, and subsequent applications for that tract have been received, the tract shall be offered for lease regardless of the withdrawal. In such case the opening bid must be not less than the minimum rental required by Rule 9 of these rules. If no bids are made the tract will not be leased.

Notice of each sale shall be given by publications in the Montana Oil Journal, published in Billings, Montana, or in a publication of general circulation in Montana. There shall be at least two publications of notice, the first of which shall be within fifteen (15) days after the previous oil and gas lease sale, and need contain only the date and place of sale, as its purpose is to allow applicants to submit their applications prior to the forty (40) day deadline provided above. Other publications, the first of which shall be not more than forty (40) days prior to the date of the oil and gas lease sale, shall state the exact time and place of the forthcoming sale, shall state that all sales will be by oral competitive bidding; and shall describe each tract separately that will be offered for lease.

The Department will maintain a mailing list of prospective oil and gas lessees who request, in writing, that their names be placed on the list. At least two weeks before each sale, the Department will mail to each addressee a copy of the notice of sale.

7. Term of Lease, Extension by Drilling Operations at End of Tenth Year

The oil and gas lease which shall be issued to the successful bidder therefor shall be granted for a primary term or period of ten (10) years, and as long thereafter as oil or gas in paying quantities is produced, on condition

that all drilling, rental and other obligations are fully kept and performed by the lessee.

If oil or gas is not being produced from the leased premises at the expiration of the primary term of the lease but the owner of the lease or his designee is then engaged in drilling on the premises for oil or gas, then the lease continues in force so long as such drilling operations are being diligently prosecuted. If oil or gas is recovered from any such well drilled or being drilled at or after the expiration of the primary term of the lease, the lease continues in force so long as oil or gas in paying quantities is produced from the leased premises.

The Board reserves the right to decide whether such drilling operations, which may continue a lease beyond the primary term, are being diligently prosecuted.

8. Form and Provisions of Lease

The oil and gas lease which will be issued to the successful bidder therefor shall be upon the form currently in use and approved by the Board. Such form, shall contain all terms, provisions, and conditions as may be reasonable and proper which are not inconsistent with the Enabling Act, the Constitution and the laws of the State and these rules.

9. Rentals

An annual money rental shall be paid to the State for each oil and gas lease at the rate of one dollar and fifty cents (\$1.50) for each acre of land leased; however, such rental shall in no case be less than one hundred dollars (\$100.00) per annum. Rental for the first year of the lease shall include any sums in excess of one dollar and fifty cents (\$1.50) per acre offered and accepted for such first year's rental. The first year's rental shall be paid before the issuance of the lease. Rental for each subsequent year of the lease shall be due

and payable before the beginning of each subsequent year, and upon failure to make such payments, the lease terminates.

The annual money rental is not in lieu of drilling operations, but continues throughout the life of the lease.

The annual money rental is in addition to any non-drilling penalty and any royalty payment. No credit against royalty payment is allowed by reason of the annual money rental payment.

No partial rental payment will be accepted, and the entire rental shall be considered unpaid until the full rental payment has been received.

10. Delay Drilling Penalties

The lessee shall commence the drilling of a well for oil or gas upon the leased premises within five (5) years of the date of approval of the lease or pay in advance a delay drilling penalty as follows: for the sixth year of the lease one dollar and twenty-five cents (\$1.25) per acre covered by the lease, and for the remainder of the primary term of the lease an amount per acre per year as the Board may, in its discretion, determine. The delay drilling penalty for the seventh and succeeding years of the primary term of the lease shall continue at the rate of \$1.25 per acre per year, unless the Board notifies the lessee not less than sixty (60) days before the commencement of the next year of the lease that payment at a different rate is required or permitted; provided that if the lessee shall apply for a hearing thereon within ten (10) days after receipt of notice, the determination of a different delay drilling penalty rate shall become final only after such hearing has been held, and the rate determined by the Board has been affirmed.

Upon failure of the lessee to either commence the drilling of a well for oil and gas upon the leased premises or to pay the required delay drilling penalty, the Board shall have

full power and authority to declare termination of the lease as of the end of the annual period of the lease in which the failure to so commence drilling or to so pay occurs. Any such termination of the lease shall be after notice to the lessee of the Board's proposed action, and after hearing thereon if the lessee so requests in writing.

If the first well drilled on the leased premises is a dry hole, and if a second well is not commenced on the land covered by the lease before the next anniversary of the lease following the completion of the well, the lease may be terminated by the Board, unless the lessee, on or before such anniversary date, resumes the payments of penalties in the amounts provided in this section. Upon the resumption of the payment of such delay drilling penalties and their continued payment, the lease continues in force during the primary term as though there had been no interruption in the delay drilling payments.

In case of any commencement of drilling in lieu of payment of a delay drilling penalty as above provided, the drilling of such well shall be prosecuted with due diligence and dispatch to such depth as is necessary to make a reasonable test for oil or gas. Failure of the lessee to do so shall subject the lease to termination by the Board as though the lessee had neither commenced the drilling of the well nor paid the required delay drilling penalty. The lessee shall, within five (5) days of spudding in, notify the Department of the commencement of drilling of any well.

11. Royalties

The lessee shall pay in cash or deliver in kind to the lessor at its option, on all oil and gas produced and saved from the leased premises and not used for light, fuel and operation purposes on the leased premises, a royalty which shall be at the following rates unless, in regard to a particular lease, the Department

advertises in its lease sale notices that the royalty will be at a higher rate:

1. On gas, at the rate of 12 1/2%;
2. On oil: on that portion of the average production of oil or casing-head gasoline for each producing well not exceeding 3,000 barrels for the calendar month, 12 1/2%; on that portion of the average production of oil or casing-head gasoline for each producing well exceeding 3,000 barrels but not exceeding 6,000 barrels for the calendar month, 17 1/2%; on that portion of the average production of oil or casing-head gasoline for each producing well exceeding 6,000 barrels for the calendar month, 25%.

The royalty on gas, including casing-head gas and all gaseous substances, while the same is not sold or used off the premises shall be at the rate of four hundred dollars (\$400) per well each year or the amount of the annual rental provided in the lease, in lieu of the per well rate, whichever is the greater, payable on or before the annual anniversary date of the lease, and as long as the leased lands contain a well capable of such production and such payment is made the lease shall be considered a producing lease under the lease terms.

The lessee shall pay royalties reserved to the State, in cash,

(a) on the reserved fraction of oil, the posted field price, or in lieu thereof, if no field price is posted, the fair market value in the field where produced on the day it is run into the pipeline or storage tanks, and

(b) on the reserved fraction of gas, the posted field price, or in lieu thereof, if no field price is posted, the fair market value at the well. In addition, the lessee shall pay to the State on the reserved fraction any bonus actually paid or agreed to be paid to the lessee for such oil or gas.

All royalties, whether in money or in kind, shall be delivered to the state free of cost and deductions.

12. Assignments and Transfers

a. The assignment of any lease, either in whole or as to subdivisions of land embracing not less than forty (40) acres covered thereby, made to an assignee qualified as provided under the law and these regulations is permitted. Such assignment is not, however, binding upon the State until filed with the Department, accompanied by the required fees, together with proof of qualifications of the assignee as a lessee, and until the assignment is approved by the Department. For the purposes of this rule, any lot, according to the governmental survey, shall be deemed to be a legal subdivision of land embracing not less than forty (40) acres. The approval of any assignment so filed and supported may not be withheld in any case where the rights or interests of the State in the premises assigned will not, in the judgment of the Department, be prejudiced thereby. Until such an assignment is approved, the lessee of record shall continue fully liable and responsible for all of the requirements and obligations of the lease.

In the case of a partial assignment, i.e. assignment of a full interest in only a portion of the leased premises, a new lease is issued for the assigned acreage, with the same expiration date as the original lease. A new ledger sheet is written and the original lease is adjusted accordingly. The original lessee and the assignee assume full liability for their respective leases.

b. The assignment of any oil and gas lease, either in whole or in part, to more than one assignee will be permitted if the proposed assignment is otherwise in compliance with the foregoing requirements; however, any such assignment will not be approved until one of the assignees is designated to act as agent for the purpose of receiving any and all notices from the Department given in connection with the lease and meeting all requirements and obligations under the lease.

c. Assignment of undivided, fractional interests in any lease, either as to the whole of the leased premises, or as to any portion thereof, is arranged by having the lessee assign title to the acreage in question to himself and the assignee. The assignment may show the respective shares of interest but the transaction is approved as a transfer of title only and without recognition of the respective interests.

d. All other assignments of oil and gas leases or interests therein are subject to approval by the Department, and are binding upon the State in the discretion of the Department.

e. Assignments involving overriding royalties or containing certain reservations by the assignee are approved as transfers of title only and without recognition of such overriding royalties or special terms and conditions.

f. Forms of Assignment of Transfer of Interests.

An assignment or transfer on the form currently approved by the Board will be acceptable.

Evidence of transfers by operation of law should be in the form of a certified copy of the appropriate court order or decree or similar document, such as letters of administration to executor or administrator, decree of distribution, executor's deed or sheriff's deed.

g. Transfer by Operation of law to Unqualified lessees: Any transfer, by operation of law, to an unqualified lessee will be recognized by the Department for a period of time in no event longer than one year, and only for the purpose of the further transfer of the interest to a qualified lessee.

h. The Department shall notify the parties to any assignment or other transfer submitted for approval of the approval or non-approval thereof.

i. As to development and production, the lease is regarded as indivisible so that drilling or securing production on any part of the severally assigned tract will inure to the benefit of all segregated parts of the original lease.

13. Surrender of Lease

a. The lessee under any oil and gas lease granted by the State may at the termination of any rental year, by giving to the Department thirty (30) days previous notice in writing, surrender and relinquish to the State any legal subdivision of the lands leased, and be discharged from any obligation not yet accrued as to the lands so surrendered and relinquished, without prejudice to the continuance of the lease as to the lands not surrendered or relinquished.

b. Although no particular form of surrender is required, such surrender must be in writing, must sufficiently identify the lease sought to be surrendered, and must specifically describe the lands to be surrendered, whether all of the lease premises or a portion only.

c. Such written instrument of surrender and relinquishment must be signed by the owner of the lease as shown by the records of the Department. If more than one person owns the working interest in a lease, either all such owners must join in a joint surrender of the lease or each must submit a separate, written surrender.

d. If operations have been conducted on lands which lessee desires to surrender, the lessee shall also submit with his written instrument of surrender evidence of the proper plugging and abandonment of any hole drilled on the lands, together with evidence that he has restored the premises in accordance with Rule 17(d).

e. If timely notice is given by the lessee of an intent to surrender lands, but the instrument of surrender is inadequate under the rules herein set forth, or if any additional required information is not timely supplied by the lessee, such informal notice of intent to surrender shall be effective to relieve the lessee of any obligation to pay further rental on the acreage to be surrendered, provided that

an instrument of surrender and any additional required information is supplied to the Department within sixty (60) days after the surrender date as intended and sought by the lessee.

14. Forfeiture, Cancellation and Termination of Leases

a. General. Every oil and gas lease granted by the State is subject to forfeiture and cancellation thereof upon failure of the lessee to fully discharge the obligations provided therein, after written notice from the Department and reasonable time allowed to the lessee for performance of any undertaking or obligation specified in such notice concerning which the lessee is in default. Before any lease is declared forfeited or cancelled, the Department shall issue written notice to the lessee of the proposed forfeiture or cancellation, and if, within ten (10) days after receipt of the notice, the lessee makes written application for a hearing on the matter, the lessee shall be granted a hearing before the Department and no forfeiture or cancellation shall become effective until after such hearing and until the Department confirms the original decision and intent to forfeit or cancel the lease, based upon the hearing. Following such hearing, notice of the decision shall be given to the lessee. Such decision may be for immediate cancellation of the lease without further opportunity of the lessee to correct any default, but the Department may also grant the lessee a further extension of time within which to perform certain specified required acts in order to continue the lease, failing which the lease will automatically terminate without further notice or hearing.

b. (1) Promptly upon receipt of such notice that a lease is to be cancelled or forfeited, if the lessee does not, within the permitted ten (10) days period apply for hearing on such notice, and (2) promptly after receipt of the final decision to cancel or forfeit the

lease, following hearing on the matter, if the lessee does not appeal, the lessee shall furnish the Department with written instrument of surrender of the lease as required under the provisions of Rule 13 above.

15. Pooling Agreements and Unit Agreements

a. The Board is authorized to enter into pooling agreements and unit agreements for the purpose of pooling and unitizing State lands held under oil and gas leases with other lands. In connection with such agreements the Board is authorized to modify any State lease with respect to delay rentals, delay drilling penalties, and royalties in accordance with such pooling agreements and such unit plans of operation; however, no such agreement may change the percentage of royalties to be paid to the State from the percentage as fixed in the lease computed on the production of oil and gas allocated to the State lands within such pooled or unitized area.

Oil and gas produced from any part of a unit in which state lands are included by virtue of a pooling or unit agreement, are considered to be produced from the state lands therein for purposes of these rules and regulations.

b. No particular form of pooling agreement or unit agreement is prescribed or required by the Board. However, if the unit agreement is in form as prescribed by the United States Geological Survey for unitized operations affecting Federal lands, the commitment of State lands to such unit agreement will normally be effected by means of the execution by the Board of an Approval and Certification on the form adopted by the Board on June 12, 1968. In all cases it is recommended, although not required, that the proposed form of pooling agreement or unit agreement be submitted to the Board for preliminary approval prior to execution by the other participants.

Operating Agreements

Any lessee may enter into agreements with another person for drilling and other operations for oil and gas on State lands under his lease or leases. However, no such operating agreements are in any way binding upon the State until filed with and approved by the Department.

17. Operations on State Leases

a. The lessee shall conduct all operations subject to such inspections as the Department shall decide to make, and shall carry out at the lessee's expense all reasonable orders and requirements of the Department relative to the prevention of waste and preservation of property. On the failure of the lessee to do so, the Department shall have the right, together with other recourse herein provided, to enter on the property to repair damages or prevent waste at the lessee's expense.

b. In all operations on lands leased pursuant to these rules and regulations, the lessee shall use the highest degree of care and all proper safeguards to prevent pollution of earth, air or water by hydrocarbons or other pollutants, excepting that pollution which is allowed, if any, by these rules and regulations and the rules and regulations relating to oil and gas published by the Oil and Gas Conservation Division of the Department of Natural Resources and Conservation. In the event of pollution, directly or indirectly caused by lessee's operations on lands leased pursuant to these rules, lessee shall use all means at its disposal to recapture escaped hydrocarbons and other pollutants and shall be responsible for all damage to public and private properties, including bodies of water of any sort, whether above or below the surface of the earth.

c. To minimize conflicts with the owner or lessee of the surface of the land leased, lessee hereunder shall:

(1) provide the surface owner or lessee with a plan for location of all facilities;

(2) consult with the surface owner or lessee regarding a reasonable location of access roads. The access roads must be located along section lines and existing roads to the fullest extent possible and they must disturb as little acreage as possible unless the surface owner agrees otherwise. In locating the roads, priority shall be given to minimizing interference with the surface owner's or lessee's operations.

The lessee shall make just payment to the surface owner for all damage done by reason of his entry upon, and use and occupancy of, the surface of the land.

d. When any oil or gas well drilling operation is commenced on land leased pursuant to these rules, any topsoil on affected lands shall be removed and stockpiled on the site. The lessee shall take all reasonable, necessary steps to insure the preservation of the stockpiled topsoil including a temporary vegetation cover to prevent erosion. At the completion of oil or gas recovery operations, and upon the final abandonment and completion of the plugging of any well, the lessee shall, unless the owner of the surface requests otherwise and executes a release to that effect, restore the surface of the location to its original contours as far as reasonably possible, redistribute the topsoil, and reseed the land with native grasses and/or native plants as prescribed by the Department.

e. Each lessee, in conducting his explorations and mining or drilling operations shall use all reasonable precautions to prevent waste of oil or gas developed in the lands and to prevent the entrance of water through wells drilled by him to the oil and gas sands or oil or gas bearing strata to the destruction or injury of the oil or gas deposits.

f. On or before the last day of each month every holder of a producing oil or gas lease shall make a report to the Department for

the preceding calendar month, on a form the Department prescribes. The report shall show the amount of oil or gas produced and saved during the preceding month, the amount of oil and gas sold, the price obtained, the total amount of all sales, and additional information as required on the form. The reports shall be signed by the lessee or some responsible person having knowledge of the facts reported, and shall be accompanied by payment of the amount due the State as royalty for the month covered by the report, unless the State's royalty is being or has been paid direct by the purchaser of the production.

When the lessee is required by Rule 230 of the Oil and Gas Conservation Board to file a completion report (form 4) with that Board, he shall also file one copy of the completion report with the Department of State Lands.

g. A lessee is required, upon completing a commercially productive oil or gas well upon the lease premises, to proceed with reasonable diligence to drill such additional wells to the depth of the formation found commercially productive, or to such depth as may be necessary to economically test, develop and operate the deposits discovered. As to lands found valuable for oil production, no lessee will be required to drill to completion more than one well under any one lease during any one calendar year, or a total number of wells under any one lease in excess of the total number of forty (40) acre subdivisions of land held under such lease. As to lands found valuable for gas production only, the drilling obligation of the lessee shall be confined to a total number of wells equal to the total number of tracts comprising one hundred sixty (160) acres of land included in the lease, of which total number of wells the drilling of not more than one will be required in any one calendar year. However, notwithstanding the foregoing general rules, if wells drilled on land contiguous to the State lands require, in the discretion of the Department, greater diligence in drilling and a great-

er number of wells to be drilled on the State lands to protect the lease premises and deposits from loss, depletion or uncompensated drainage due to the wells on the contiguous lands, such greater diligence and greater number of wells may be required. All such requirements, however, shall be subject to, and shall not be inconsistent with, applicable rules, regulations and orders of the Oil and Gas Conservation Division of the Department of Natural Resources and Conservation.

h. Performance of well drilling operations as required by the foregoing rule may be suspended only by and with the consent of the Board during the time oil or gas previously discovered cannot be marketed at a profit, or for other good cause shown. When such suspension of drilling operations is deemed necessary and desirable by the lessee, the lessee shall submit a written statement of reasons therefor to the Board. If the requested suspension of drilling operations is approved by the Board, it shall issue to the lessee a statement or certificate authorizing the suspension for a time certain and require the lessee, within such time certain, to make written application to the Board for any further extension of the time in which such drilling operations may be suspended.

i. Upon the termination for any cause of any lease, the lessee has six months after the date of the termination to remove all machinery, fixtures, improvements, buildings and equipment belonging to him on the premises, except casing in any well capable of producing oil or gas and other equipment or apparatus necessary for the preservation of any well capable of producing oil or gas in quantities sufficient to pay for the operation of such well. With respect to any well which has not been completely plugged and abandoned by the lessee prior to the termination date, the lessee shall not remove casing or equipment from the well nor plug and abandon it without written approval from the Department for such action.

3. If upon the termination of any lease there is located on the lease a well capable of producing oil or gas and if the succeeding lessee, or in the event there is no succeeding lessee, the State, wishes to have the casing, equipment and apparatus necessary for preservation of the well left upon the premises, that party shall pay to the lessee under the terminated lease the reasonable value of such property. If the succeeding lessee or the Department is unable to agree with the former lessee upon the reasonable cash value of such casing, equipment and apparatus, the succeeding lessee or the State, as the case may be, shall pay in cash, to the former lessee a sum fixed as a reasonable price by a board of three (3) appraisers, one of whom shall be chosen by the succeeding lessee or the state, one by the former lessee, and the third by the two so chosen. Its appraisal shall be reported to the respective parties in writing, and is final and conclusive. Each party will pay the cost of the appraiser which it selects, and the parties will bear equally the cost of the third appraiser.

The former lessee may remain in possession and manage the land and property formerly covered by his lease until the value of the casing, equipment and apparatus which the succeeding lessee or the State desires to have left upon the premises is fixed in the manner provided in this section and has been paid to him in cash. During the time the former lessee remains in such possession, he may retain the same share of the products of the premises as inured to him during the term of his lease. Should the State or the succeeding lessee not desire any of the lessee's property as provided in these rules the lessee shall properly plug all wells and remove all of his property from the lands.

Any casing, machinery, fixtures, improvements, buildings and equipment belonging to any lessee and not removed within six (6) months after the date of termination of the lease shall, upon the expiration of the six (6)

months period become the property of the State. However, the claiming of such property from the lands, or any of such actions, shall not relieve the lessee of his obligation to properly plug and abandon all wells, to remove all debris and equipment from the lands, and to restore the premises to their condition prior to drilling operations as far as reasonably possible.

18. Lien on Production

The state shall have a first lien upon all oil or gas produced from the lands leased by any person pursuant to these rules to secure the payment of unpaid royalty and rental and other sums of money which may become due under the terms of that person's lease.

19. Hearings and Appeals

a. It is the desire and intent of the Board that any lessee, or prospective lessee, be given full and adequate opportunity to be heard with respect to any matter affecting the interests of the lessee in any particular lease. Any hearing will be conducted informally, without adherence to the strict rules of evidence of a court of law.

b. A verbatim, written record of any hearing or rehearing will be made if any party in interest so requests not less than five (5) days prior to the day set for hearing, and provided the requesting party agrees to pay the cost thereof, including the cost of the original copy of the transcript which shall become a part of the case record and remain on file with the Department. The party requesting such verbatim record may be required to deposit in advance the anticipated cost of the record. If such written record is made, it shall be certified as true, correct and complete.

20. Records

a. A separate file and record shall be

kept on each hearing held on application of a lessee or prospective lessee. Such separate file shall contain the written application for the hearing, a copy of the notice given which gives rise to the hearing, evidence of the mailing thereof, and the transcript of the hearing, if prepared.

b. The Department shall maintain a record of the publication of notices of all lease sales. Such record shall consist of published copies of such notices or affidavits of publication as provided in Section 93-1701-2, Revised Codes of Montana, 1947.

21. Fees

a. For application for oil and gas lease, \$10.00.

b. For filing each assignment affecting an oil and gas lease, or interest therein, of whatsoever nature, \$10.00.

22. Amendment of Rules and Regulations

These rules and regulations may be altered, changed or modified at any time by action in accordance with the Montana Administrative Procedures Act, Section 82-4201 et seq., R.C.M. 1947.

Appendix B

Summary of
Water Quality Monitoring Programs
and
Fishery Studies
in the North Fork Area



**WATER RESOURCES
DIVISION**

**ORRIN FERRIS
ADMINISTRATOR**

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

**THOMAS L. JUDGE, GOVERNOR
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449-2872
32 SOUTH EWING
NATURAL RESOURCES BUILDING
HELENA, MONTANA 59601

January 27, 1976

Mr. Bryce Hayden
Department of State Lands
1625 Eleventh Avenue
Helena, Montana 59601

Dear Mr. Hayden:

I have enclosed a brief summary on the water quality monitoring program being conducted on the North Fork of the Flathead River by the Flathead Drainage 208 Project and Montana Department of Fish and Game. This report should fulfill your January 22, 1976, request for information on current water quality data being collected.

Water quality sampling prior to the present program was conducted by the Department of Health and Environmental Sciences, Department of Fish and Game and limited work by the U. S. Forest Service. This information is available but has not been assimilated to date. The analysis of this data is one of my tasks under HB 622 but it will not be completed until March, 1976.

Recent communications with Jim Peterson of the Air Quality Bureau, Department of Health and Environmental Sciences, indicate the only air quality station along the North Fork is at the north end of Teakettle Mountain. This station is sampling for fluorides from the Anaconda Aluminum Company plant near Columbia Falls.

I hope this information will be beneficial to your efforts and, if you have any additional requests, please do not hesitate.

Sincerely,

Hanley Jenkins, II
Hanley Jenkins, II
Resource Planner

Enclosure

APPENDIX A¹

- I. The North Fork of the Flathead River is currently being sampled for chemical, biological and physical data. The framework for this sampling is a product of an Interagency Task Force established to develop a base line level of information on the North Fork of the Flathead River.

Section A presents those parameters being sampled, their respective locations and sampling frequencies. Section B displays the sampling being conducted on benthic insects, the sampling frequencies and locations.

- A. The North Fork of the Flathead River is presently gaged at the Montana-Canadian border by the U. S. Geological Survey for a number of chemical and biological parameters. The Flathead Drainage 208 Project has upgraded this station by adding additional chemical parameters and providing partial funding for the sediment station. Exhibit I displays both chemical and biological parameters to be examined and their sampling frequency. The first seven parameters have been added to the border station through the Flathead Drainage 208 Project funding while the remaining parameters are presently being collected and analyzed by the U. S. Geological Survey.

Beginning on October 1, 1975, the U. S. Geological Survey established a quality station above the mouth of Canyon Creek on the mainstem of the North Fork of the Flathead River. This station will be an identical twin to the border station.

The Flathead Drainage 208 Project and the Montana Department of Fish and Game have officially begun collection of chemical data on 12 Whitefish Range tributaries to the North Fork of the Flathead River and at a sampling station near Polebridge and Bowman Creek. The stations, creeks being sampled, their locations and descriptions of the stations are included in Exhibit II. These stations will be operated from October 1, 1975, through September 30, 1976. The following data is being collected on the tributaries and at the Polebridge station:

CHEMICAL PARAMETERS

1. For mainstem and Whitefish Range Tributary mouths.
 - a. Monthly - pH, turbidity, conductivity, alkalinity, iron, aluminum, zinc, mercury, lead, fluoride, silica, sulfate, ortho-phosphate, nitrate, nitrite, ammonia, acidity.
 - b. To be done semiannually - specific conductance, calcium, magnesium, chloride, sulfate, sodium, potassium, manganese.

¹ Department of Natural Resources and Conservation, "Plan of Work for House Bill 622", Helena, Montana. (1976).

2. For Whitefish Range Tributary headwaters

- a. Quarterly - same as monthly above.
- b. Semiannually - same as above.

The Montana Department of Fish and Game has established thirteen Fish Population Sampling Stations in addition to the previously mentioned stations. Electro shocking methods are utilized to determine what species exist and at what times of the year. This study is aimed at analyzing which species of fish use what Whitefish Range Tributaries for spawning or natural habitat.

- B. Benthic insects are being collected and identified by the Flat-head Drainage 208 Project. Samples will be collected four times in the following year beginning in November, 1975, and continuing in February, April and August, 1976. All samples gathered will be identified.

The sampling stations are discussed according to two levels of detail and frequency.

1. Four mainstem stations have been established and are as follows: U. S.- Canadian border, Polebridge, Canyon Creek and the Middle Fork. Three collection techniques will be utilized and are discussed below:
 - a. Quantitative samples will be gathered with a Hess round square foot sampler equipped with a 350 micron mesh nitex netting. Six samples will be taken from each station to determine how many benthic insects inhabit a square foot area of the river bed.
 - b. Drift samples will be taken using drift nets with 5x5 inchmouths and 350 micron mesh netting. Samples will be collected for one hour at seven equally spaced time periods throughout a 24 hour period. Sampling time will be adjusted for sunrise, sunset and the stage of the moon.
- C. A qualitative sampling of all habitats at each station in the river will also be done using kick screens, dip nets, etc. Collection will continue for one half hour. These samples will aid in the detection of any species missing from previous samples and thus will ensure a complete species list for the river.
 2. Ten tributary stations have been defined and insects will be collected at or near each of their mouths. They are listed as follows: Trail, Whale, Moose, Red Meadow, Hay, Moran, Coal, Big, Canyon and Bowman Creeks.

Only the quantitative samples will be collected at these stations. Samples will be taken on the same days as those on the mainstem stations and in a similar manner; with the exception, only four samples are taken at each station instead of six.

Changes in insect numbers per square foot or species present can indicate a change in water quality. In this way the insect community can be used as a very sensitive indicator of water quality.

EXHIBIT I

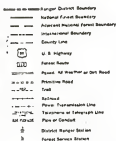
<u>Parameter</u>	<u>Station</u>	<u>Sampling Frequency</u>
Suspended sediment	Border (USGS 12355000)Canyon Creek	(USGS1235500) Daily
Aluminum, Total	Border, Canyon Creek	Quarterly
Aluminum, Dissolved	Border, Canyon Creek	Quarterly
Acidity	Border, Canyon Creek	Monthly
Ammonia	Border, Canyon Creek	Monthly
Organic Carbon, Suspended	Border, Canyon Creek	Quarterly
Organic Carbon, Dissolved	Border, Canyon Creek	Quarterly
Phytoplankton	Canyon Creek (USGS 12355500)	Monthly
Periphyton	Canyon Creek	Quarterly
Discharge	Canyon Creek	Cont.
Discharge	Canyon Creek	Inst.
Conductance	Canyon Creek	Daily
Water temp.	Canyon Creek	Daily
pH	Canyon Creek	Monthly
Fecal coliform	Canyon Creek	Monthly
Fecal strep	Canyon Creek	Monthly
Dissolved Oxygen	Canyon Creek	Monthly
Bicarbonate	Canyon Creek	Monthly
Carbonate	Canyon Creek	Monthly
Hardness, total	Canyon Creek	Monthly
Hardness, Non Carb	Canyon Creek	Monthly
Calcium, Dis	Canyon Creek	Monthly
Magnesium, Dis	Canyon Creek	Monthly
Fluoride, Dis	Canyon Creek	Monthly
Sodium, Dis	Canyon Creek	Monthly
Potassium, Dis	Canyon Creek	Monthly
Residue Evaporation at 180°	Canyon Creek	Monthly
Dissolved Solids (sum)	Canyon Creek	Monthly
Silica, Dis	Canyon Creek	Monthly
Turbidity, JTU	Canyon Creek	Monthly
Chloride, Dis	Canyon Creek	Monthly
Sulfate, Dis	Canyon Creek	Monthly
Total Phosphorus	Canyon Creek	Monthly
Total Nitrate, Nitrite	Canyon Creek	Monthly
Kjeldahl Nitrogen	Canyon Creek	Monthly
Arsenic, Dis	Canyon Creek	Quarterly
Arsenic, Total	Canyon Creek	Quarterly
Cadium, Dis	Canyon Creek	Quarterly
Chromium, Dis	Canyon Creek	Quarterly
Chromium, Total	Canyon Creek	Quarterly
Cobalt, Dis	Canyon Creek	Quarterly
Cobalt, Total	Canyon Creek	Quarterly
Copper, Dis	Canyon Creek	Quarterly
Copper, Total	Canyon Creek	Quarterly
Iron, Dis	Canyon Creek	Quarterly
Iron, Total	Canyon Creek	Quarterly
Lead, Dis	Canyon Creek	Quarterly
Lead, Total	Canyon Creek	Quarterly
Manganese, Dis	Canyon Creek	Quarterly
Manganese, Total	Canyon Creek	Quarterly
Mercury, Dis	Canyon Creek	Quarterly
Mercury, Total	Canyon Creek	Quarterly
Selenium, Dis	Canyon Creek	Quarterly
Selenium, Total	Canyon Creek	Quarterly
Zinc, Dis	Canyon Creek	Quarterly
Zinc, Total	Canyon Creek	Quarterly

EXHIBIT 11

SAMPLING CODE

STATION	CREEK	LOCATION	DESCRIPTION OF STATION
I	Colts Creek	S 8 T 37 N R 22 W	Near mouth at Northfork Road
II	Trail (Yakinikak)	S 35 T 37 N R 22 W	Near mouth at Northfork Road
II-a	Trail (")	S 33 T 37 N R 23 W	Above mouth of Tuchuck Creek
II-aa	Tuchuck	S 33 T 37 N R 23 W	At mouth
II-ab	Thoma	S 36 T 37 N R 23 W	At mouth
III	Teepee	S 11 T 36 N R 22 W	Near mouth at Northfork Road
III-a	Teepee	S 7 T 36 N R 22 W	At bridge crossing
IV	Whale	S 30 T 36 N R 21 W	Near mouth at Northfork Road
IV-a	Whale	S 29 T 36 N R 23 W	Above mouth of Shorty Creek
IV-aa	Shorty	S 29 T 36 N R 23 W	At mouth
IV-ab	Akinkokn	S 26 T 36 N R 23 W	At bridge crossing near mouth
V	Moose	S 31 T 36 N R 21 W	Near mouth at Northfork Road
V-a	Moose (upper)	S 5 T 36 N R 22 W	Upper Moose Creek
VI	Hawk	S 6 T 35 N R 21 W	Near mouth at Northfork Road
VII	Red Meadow	S 7 T 35 N R 21 W	Near mouth at Northfork Road
VII-a	Red Meadow	S 24 T 35 N R 23 W	Below Red Meadow Lake
VII-aa	Southfork Red Meadow	S 7 T 35 N R 21 W	At mouth of Southfork Red Meadow
VIII	Hay	S 34 T 35 N R 22 W	Near mouth at Northfork Road
VIII-a	Hay	S 32 T 35 N R 22 W	Upper Hay Creek
IX	Moran	S 2 T 34 N R 21 W	Near mouth at Northfork Road
X	Coal	S 20 T 34 N R 20 W	Near mouth at Northfork Road
X-a	Coal	S 24 T 34 N R 22 W	Upper Coal above mouth of South Fork Coal Creek
X-aa	South Fork Coal	S 22 T 34 N R 22 W	Mid-section
X-ab	Cyclone Creek (above & below)	S 16 T 34 N R 21 W	Above Cyclone Lake
X-ab-1	Cyclone Creek Cyclone Lake	S 35 T 34 N R 21 W	Near mouth
XI	Big Creek	S 22 T 33 N R 20 W	Near mouth at Northfork Road
XI-a	Big Creek	S 5 T 32 N R 21 W	Above mouth Hallawat Creek
XI-aa	Kletomus	S 25 T 33 N R 22 W	At mouth
XI-ab	Hallawat	S 33 T 33 N R 21 W	At mouth
XI-ac	Elelehum	S 26 T 33 N R 21 W	At mouth
XI-ad	Langford	S 20 T 33 N R 20 W	At mouth
XII	Canyon	S 27 T 32 N R 20 W	Near mouth
XII-a	Canyon	S 27 T 32 N R 21 W	Upper section
XII-aa	Kimmerly	S 29 T 32 N R 20 W	At mouth
XII-ab	Maginnis	S 27 T 32 N R 21 W	At mouth

1971
Scale



- North Quarry at Greiner Pit
- Recreation Trail, Forest Service
- Rocky Point, Bay Center, State Forest Service
- Marquette Campsite Station
- Marquette Campsite Station and Permanent Lumbered Station
- Permanent Lumbered Station
- Permanent Lumbered Station with Access to Water on Road
- Located by Landmark & Distance
- Geology Station
- Seaside
- House, Cabin or other Building
- Schoolhouse
- Church
- Natural Forest Land
- Comprising the District

- Water Quality Stations
- Fish Population Sampling Station
- Complete Chemical Stations
- ▲ Biological Gaging Stations
- ▲ Complete Biological Gaging Station

STATE OF MONTANA



DEPARTMENT OF

FISH AND GAME

Region One
490 N. Meridian
Kalispell, MT 59901
February 5, 1976

Brace Hayden
Department of State Lands
1625 11th Avenue
Helena, Montana 59601

Dear Mr. Hayden:

Enclosed is the information you requested concerning the probable effects of gas and oil leases on State Lands in the Coal Creek Drainage on Fisheries Habitat.

Sincerely,

Robert J. Domrose
Fisheries Management Biologist

RJD:ns
Encls:

A water quality monitoring program was initiated in September of 1975, jointly sponsored by the Flathead 208 Study Team and the Montana Department of Fish and Game. The study is designed to collect monthly water samples and bottom fauna samples from the main-stem of the North Fork of the Flathead River and important west-side tributary streams flowing into the North Fork. This study is funded for a one year period. A proposal to extend the monitoring program for another year or two has been made and hopefully will be funded by the Environmental Protection Agency. It is felt that more than one year's data is necessary to establish base line information prior to environmental disturbance by the Canadian Coal Development and Texas-Pacific oil and gas leases.

In addition, a long-term North Fork River drainage fisheries study proposal is in the process of being drafted. The first phase of the study will begin in spring of 1976. Emphasis will be directed on the spawning migration of cutthroat trout from Flathead Lake. We hope to collect information pertaining to time of spawning, time the migrants spend in the main river, selection of spawning tributaries, spawning habitat parameters, recruitment and movements within the river-stream system.

In view of the proposed North Fork Coal and Gas and Oil exploration, survey and inventory work in Region One was concentrated in the North Fork Drainage. The information collected to date is only a small fragment of information needed for baseline fisheries data in the drainage and relates only to fish species and fish distribution, in the drainage. Since you are interested in background data on state lands, I will briefly summarize information collected only in the Coal Creek Drainage.

Coal Creek drains into the North Fork of the Flathead River approximately 35 miles north of Columbia Falls. It drains an area of approximately 85 square miles, the headwaters arising from the Whitefish Mountain Range.

Principle tributary streams include South Fork of Coal Creek, Mathias Creek, Cyclone Creek and Dead Horse Creek.

Past environmental disturbances in the drainage effecting stream flows and water quality can be attributed to extensive clear-cut logging and roading in the 50's and 60's. The disturbance of vegetative cover and understory, disrupted run-off patterns by increasing water yield and peak flows during spring run-off period. As a result, several large areas of stream instability from scouring, deposition, channel braiding and stream bank erosion has occurred. The loss of stream habitat carrying capacity for Dolly Varden and westslope cutthroat trout from these disturbances is not known.

Cyclone Lake, a 145 acre lake, is the only lake of significant size supporting a fishery in the drainage. This lake is relatively shallow (maximum depth of 22 feet) and supports an excellent self-sustaining fishery for west-slope cutthroat trout. Other game fish inhabiting the lake are Dolly Varden, grayling and mountain whitefish.

Coal Creek is an integral part of the Flathead River-Flathead Lake complex in that it provides spawning and nursery areas for migrant Dolly Varden and westslope cutthroat trout. The Flathead Lake fishery is therefore, dependent on recruitment and return of these species to the lake and its tributaries are a wild trout fishery and are not supplemented by artificial stocking.

Coal Creek Drainage is one of four drainages in the North Fork (outside Glacier Park) closed to fishing for the purpose of further protecting spawners and enhancing this fishery. Restrictive regulations, however, have given this fishery only a small measure of protection. High water quality standards, maintenance and restoration of stream habitat are of the utmost importance in sustaining a wild trout fishery.

Water quality data collected since September indicate that the drainage is relatively low in fertility. Total dissolved solids and relatively low PH values would indicate the buffering action of these waters is low which means that small changes in amounts of acid or base could considerably alter PH values. Turbidities measured thus far have ranged from .5 to 3 Jackson turbidity units. Disturbances from further road building or land scarification could increase turbidities and sediment loads.

Water quality parameters measured thus far, show that water quality of the Coal Creek Drainage is excellent for supporting and sustaining wild trout populations. The water quality parameters being measured for this study are on the enclosed print-out sheet.

Fish population surveys in the Coal Creek Drainage include work done on the main-stem of Coal Creek, South Fork of Coal Creek, Mathias Creek and Cyclone Creek. Fish collections were made with electrofishing apparatus in late August and early September. Data collected included distribution of fish in the drainage, relative abundance, size, age and growth.

Briefly I will comment on our findings as they pertain to fishing streams on State land in the drainage.

(1) Cyclone Creek - this creek was sampled above and below the lake. Westslope cutthroat populations were found in both sections ranging in size from 3.0 inches to 8.6 inches. These fish are primarily stream residents or possibly migratory fish from Cyclone Lake.

(2) Coal Creek - was sampled at two locations, T34N R22 W Sec.26 and T34 R21W Sec. 28 and 29. Both stream sections are inhabited by Dolly Varden ranging from juvenile to adult spawners of 3.4 to 29.8 inches, and westslope cutthroat trout from 3.9 inches to 10.4 inches. Juvenile and adult mountain whitefish were found only in the lower stream section and these fish ranged from 7.4 to 15.4 inches.

(3) Dead Horse Creek - sampling in Dead Horse Creek will be conducted in the summer of 1976.

Cutthroat and Dolly Varden trout have occupied these pristine, cold, headwater streams for centuries. The impact on habitat and water quality alterations from oil and gas leases leading to the development of these resources could have long lasting detrimental effects on this unique fishery. Possibly, no other trout fishery could survive and reproduce under the stringent, cold, low fertility streams in the North Fork system.

We strongly recommend that the gas and oil leases be either delayed or be denied in the North Fork Drainage until such time more information pertaining to water quality and fish habitat requirements can be established. At least two more years of base water quality and four to five years of fisheries studies are needed to complete our investigations.

MONTANA BUREAU OF MINES AND GEOLOGY
 BUTTE, MONTANA 59701 (406)792-8321

WATER QUALITY ANALYSIS
 LAB NO 75M1731

STATE	MONTANA	COUNTY	FLATHEAD
LATITUDE-LONGITUDE	484118N 1141132W	SAMPLE LOCATION	34N 20W 20SCD
TOPOGRAPHIC MAP		SAMPLE SOURCE	STREAM
GEOLOGICAL SOURCE		STATION CODE	COAL CR X
DRAINAGE BASIN	76L-J	BOTTLE NO.	X
AGENCY + SAMPLER	MP G + CJM	ALTITUDE OF SAMPLE POINT	3440.
DATE SAMPLED	11-10-75	TOTAL DEPTH OF WATER	
TIME SAMPLED	1300	STAGE HEIGHT	
LAB + ANALYST	MBMG + LAN	DEPTH TO SAMPLING POINT	
DATE ANALYZED	12-04-75	FLOW MEAS METHOD	
SAMPLE HANDLING	7 3	WATER FLOW RATE	102. CFS(E)
METHOD SAMPLED	GRAB	WATER USE	RECREATIONAL

SAMPLING SITE
 DRAINAGE BASIN FLATHEAD RIVER TO AND INCLUDING FLATHEAD LAKE

	MG/L	MEQ/L		MG/L	MEQ/L
CALCIUM (CA)	17.38	0.867	BICARBONATE (HCO3)	74.19	1.216
MAGNESIUM (MG)	4.71	0.387	CARBONATE (CO3)	.0	0.000
SODIUM (NA)	.9	0.039	CHLORIDE (CL)	.95	0.027
POTASSIUM (K)	.3	0.008	SULFATE (SO4)	4.6	0.096
TOT. IRON (FE) <	.01	0.001	NITRATE (AS N)	.045	0.003
MANGANESE (MN) <	.01	0.000	NO3+NO2 TOT (AS N)	.	0.000
ALUMINUM (AL)	.	0.000	FLOURIDE (F)	< .1	0.005
SILICA (SIO2)	5.1		O-PHOSPHATE (AS P)	.	0.000

TOTAL CATIONS 1.302

TOTAL ANIONS 1.347

STANDARD DEVIATION OF ANION - CATION BALANCE 0.38 SIGMA

LABORATORY PH	7.81	TOTAL HARDNESS AS CaCO3	63.
FIELD TEMPERATURE	33. F	TOTAL ALKALINITY AS CaCO3	74.
CALCULATED DISSOLVED SOLIDS	70.7	SODIUM ADSORPTION RATIO	0.1
SUM OF DISS. CONSTITUENTS	108.3	RYZNAR STABILITY INDEX	8.9
LAB SPEC. COND. (MICROMHOS/CM)	125.5	LANGLIER SATURATION INDEX	-0.5

ADDITIONAL PARAMETERS

OXYGEN, DISS (MG/L AS O)	11.9	PH, FIELD (SU)	7.6
TURBIDITY, FIELD (JTU)	0.95	ALKALINITY, FLD (AS CaCO3)	66.
CONDUCTVY, FIELD MICROMHOS	139.	NITRITE, DISS (MG/L AS N) <	.01
PHOSPHORUS, TR (MG/L-P) <	.007	O-PHOSPHATE, DISS (MG/L-P) <	.007
ALUMINUM, DISS (MG/L-AL) <	.05	LEAD, DISS (MG/L AS PB) <	.05
ZINC, DISS (MG/L AS ZN) <	.01		

REMARKS: FLATHEAD 208 PROJECT

EXPLANATION: MG/L-MILLIGRAMS PER LITER MEQ/L-MILLIEQUIVALENTS PER LITER
 AL CONSTITUENTS DISSOLVED (DISS) EXCEPT AS NOTED: TOT=TOTAL SUSP=SUSPENDED
 TR=TOTAL RECOVERABLE (M)=MEASURED (R)=REPORTED (E)=ESTIMATED M = METERS

PROCESSING PGM: GWANAL (FORM 153)

FUND: /

PERCENTAGE REACTANCE VALUES								
CA	MG	NA	K	CL	SO4	HCO3	CO3	NO3
66	29	3	0	1	7	90	0	0

NOTE: IN CORRESPONDENCE RELATED TO THIS ANALYSIS REFER TO NUMBER 75M1731

Appendix C

Interdepartmental Correspondence
(DSL/DNRC) Regarding Surface Resource
Management and Oil and Gas
Leasing on Coal Creek State Forest